

WEST CAMBRIDGE

OUTLINE PLANNING APPLICATION
DESIGN AND ACCESS STATEMENT
for approval



UNIVERSITY OF
CAMBRIDGE

SEPTEMBER 2017

Credits:

*Masterplanner:
AECOM Design & Planning*

with:

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All of the drawings/diagrams in this document are provided for illustrative purposes only. This Design, Access and Landscape Statement is provided to support the planning application for the Proposed Development, and all details of access, appearance, landscaping, layout and scale are reserved within the parameters set out in the Parameter Plans & Statements and Environmental Statement

CONTENTS

0. Introduction

0.1. Purpose and scope of this document	6
0.2. The proposed development and masterplanning process	6
0.3. The Planning Application	8
0.4. Structure of the Design and Access Statement	9

VOLUME A

1. University need

1.1. Drivers for development	14
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2. University vision

2.1. West Cambridge: a new trajectory	18
2.2. Vision for West Cambridge: Gradual transformation of place	20

3. Development context

3.1. Strategic context	24
3.2. Town Planning context	28
3.3. Transport context	29
3.4. Local context	30
3.5. Site description	38
3.6. Existing consented masterplan	44
3.7. Benchmarking analysis	50
3.8. Development context - conclusions	58

4. Masterplan development process

4.1. University response	62
4.2. Design response	66
4.3. Evolution of the proposals	76

5. Proposed development

5.1. Parameter Plans	90
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VOLUME B

6. Illustrative design principles

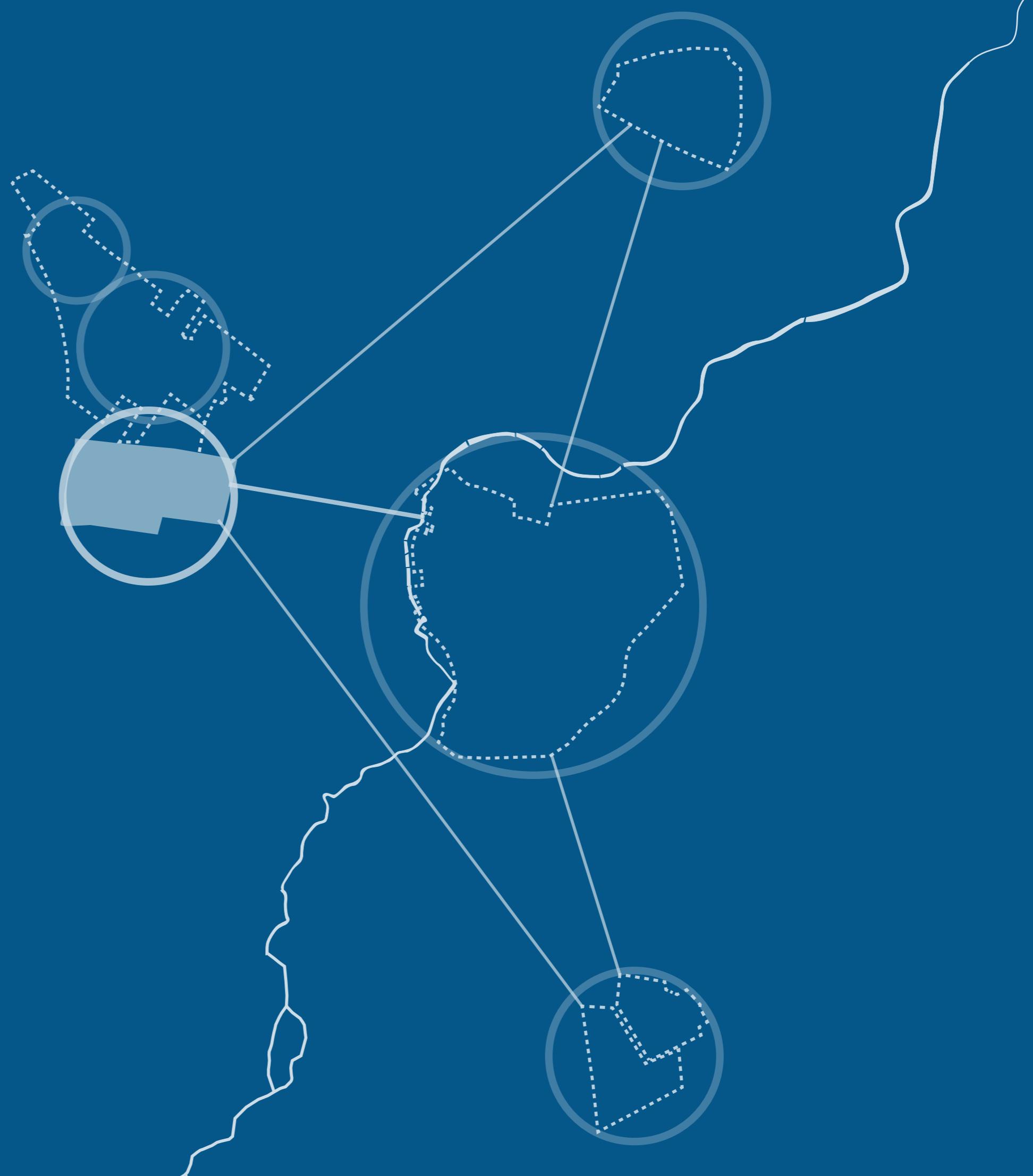
6.1. Urban and landscape structure	102
6.2. Connectivity	106
6.3. Character	112
6.4. Community and open space	118
6.5. Climate	126

7. Illustrative masterplan

7.1. Illustrative masterplan	130
7.2. Illustrative phasing	132
7.3. Interim activities	138

8. Transformation of key spaces

8.1. Key places	142
8.2. Streets and Green Links	156



INTRODUCTION

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0. INTRODUCTION

0.1. Purpose and scope of this document

0.1.1 This Design and Access Statement has been prepared in support of the outline planning application submitted by the University of Cambridge for the comprehensive development of the West Cambridge site.

0.1.2 The aim of The Design and Access Statement is to explain and illustrate the essential place-making principles that will deliver a well-connected, lively, distinctive and attractive West Cambridge environment.

0.1.3 This document consists of two Volumes, the first of which explains the origins of and describes the Proposed Development (Volume A). This Volume includes: an appraisal of the existing site and its context; the University's vision, the objectives and drivers for development; the design response and evolution of the Proposed Development; which underpin the development parameters. The Illustrative Material is contained in Volume B, which describes the principles for development as well as the Illustrative Masterplan, which shows one way that development might come forward according to the principles and parameters. These illustrative principles for development support and conform to the West Cambridge Design Guidelines document, which is included as part of the application material.

0.1.4 This Design and Access Statement has been prepared in accordance with the requirements set out in the The Town and Country Planning (Development Management Procedure) (England) Order 2015. It explains:

- the design principles and concepts that have been applied to the development (sections A5 and B1);
- how issues relating to accessing the development have been dealt with (section A4);
- the policy adopted in relation to access and how policies relating to access in local development documents have been taken into account (section A4);
- the steps taken to appraise the context of the development and how the design of the development takes that context into account (section A3);
- the consultation that has been undertaken on issues relating to access and the outcome of this consultation (section A4); and
- how specific issues which affect access have been addressed (section A5 and B1).

0.2. The proposed development and masterplanning process

0.2.1 The Application Site is located to the west of Cambridge City within the administrative area of Cambridge City Council.

0.2.2 Outline planning permission is being sought for up to 383,300m² of additional floorspace at West Cambridge (the Proposed Development), comprising:

- up to 370,000m² of academic floorspace (Class D1), commercial / research institute floorspace (Class B1b and sui generis research uses), of which not more than 170,000m² will be commercial floorspace;
- up to 2,500m² nursery;
- up to 1,000m² of A1-A5 uses;
- up to 4,100m² floorspace for community facilities, and not less than 3,000m²;
- up to 5,700m² of sui generis uses;
- demolition of existing structures; and
- associated infrastructure including roads (including adaptations to Madingley Road), pedestrian, cycle and vehicle routes, parking, drainage, open spaces and earthworks.

0.2.3 A new illustrative masterplan for the West Cambridge site has been developed and used as a basis for establishing development parameters which will define key aspects of development. This masterplan has been developed based on knowledge of the projected needs of existing and known future occupiers. Best practice experience and precedents have informed the elements of the masterplan where specific future occupiers are unknown.

0.2.4 Development parameters and masterplan principles set a robust framework for the development and form part of this Design and Access Statement. A finer grain of definition is provided through the Design Guidelines document.



01. The West Cambridge site shown in relation to North West Cambridge Development and Cambridge city centre

Section A5 clearly sets out what the application is applying for, including the description of development parameter plans and design guidelines. All other information contained within the DAS is illustrative.



02. West Cambridge Illustrative Masterplan - view of the East Forum

0.3. The Planning Application

0.3.1 This Application seeks planning permission, with details of appearance, landscaping, layout and scale reserved, within the parameters set out in the accompanying Parameter Plans, Design Guidelines and the Environmental Statement and the following supporting information:

- 01 Planning Statement
- 02 Statement of Community Involvement
- 03 Transport Assessment
- 04 Travel Plan
- 05 Sustainability Statement
- 06 Energy Statement
- 07 Flood Risk Assessment and Drainage Strategy
- 08 Waste Management Plan
- 09 Utilities Statement
- 10 Construction and Environmental Management Plan
- 11 Environmental Statement
- 12 Arboricultural Impact Assessment
- 13 Woodland Management Plan
- 14 Heritage Assessment

The West Cambridge Outline Planning Application

Description of Development Including Parameter Plans	Design and Access Statement Including Design Principles and Illustrative Material	Design Guidelines	Other Planning documents
<p>Parameter Plans:</p> <ul style="list-style-type: none">01 Development Building Zones02 Land Use03 Access and Movement04 Landscape and Public Realm05 Maximum Building Heights <p>In addition:</p> <ul style="list-style-type: none">Application BoundaryDemolition Plan	<p>Volume A:</p> <ul style="list-style-type: none">01 University need02 University vision03 Development context04 Masterplan development process05 Proposed development <p>Volume B:</p> <ul style="list-style-type: none">01 Design principles02 Illustrative masterplan03 Transformation of key places	<ul style="list-style-type: none">00 Introduction01 Site-wide Design Guidelines02 Key places03 Streets and Green Links04 Site edges	<ul style="list-style-type: none">01 Transport Assessment02 Environmental Statement03 Planning Statement04 Sustainability Statement05 Energy Statement06 Statement of Community Involvement07 Waste Management Plan08 Utilities Statement09 Construction Environmental Management Plan10 Arboricultural Impact Assessment11 Woodland Management Plan12 Heritage Assessment

03. The West Cambridge Planning Application - key documents

0.4. Structure of the Design and Access Statement

0.4.1 This document is structured as two volumes: Volume A comprises the Design and Access Statement and the supporting Illustrative Material forms Volume B of this document.

0.4.2 Volume A is structured as follows:

A1 - University need

0.4.3 Sets out the University's forecast need for development across the proposed land uses.

A2 - University vision

0.4.4 Establishes the University's overall vision and objectives for the Proposed Development at West Cambridge.

A3 - Development context

0.4.5 Describes the strategic, wider and local context of the site as well as providing a description of the site as it exists today. In addition, this section sets out key benchmarking studies which set precedents (or benchmarks) for the quality and character of the place, possible building types and role of open space and public realm within the Proposed Development. This section also provides a description of the existing consented masterplan, as well as transport context and planning policy.

A4 - Masterplan development process

0.4.6 Sets out the key responses to the site constraints and development context and details the evolution of the masterplan through the design and consultation process.

A5 - Proposed development

0.4.7 The final section presents the application proposals for the Application Site in the form of Parameter Plans.

0.4.8 The illustrative material, Volume B of this document, is structured as follows:

B1 - Design principles

0.4.9 Sets out the site-wide Design Principles for the illustrative masterplan developed within the framework of the Cambridgeshire Horizons Quality Charter four 'C's': Connectivity, Character, Community and Climate. Within this framework, the Design Principles describe the proposed distribution of uses, the amount of development, layout, scale, landscape, appearance and access.

B2 - Illustrative masterplan

0.4.10 Provides a description of the illustrative masterplan, including landscape and public realm, character areas and phasing. The illustrative masterplan demonstrates one way in which the Application Proposals could be delivered on the Application site.

B3 - Transformation of key spaces

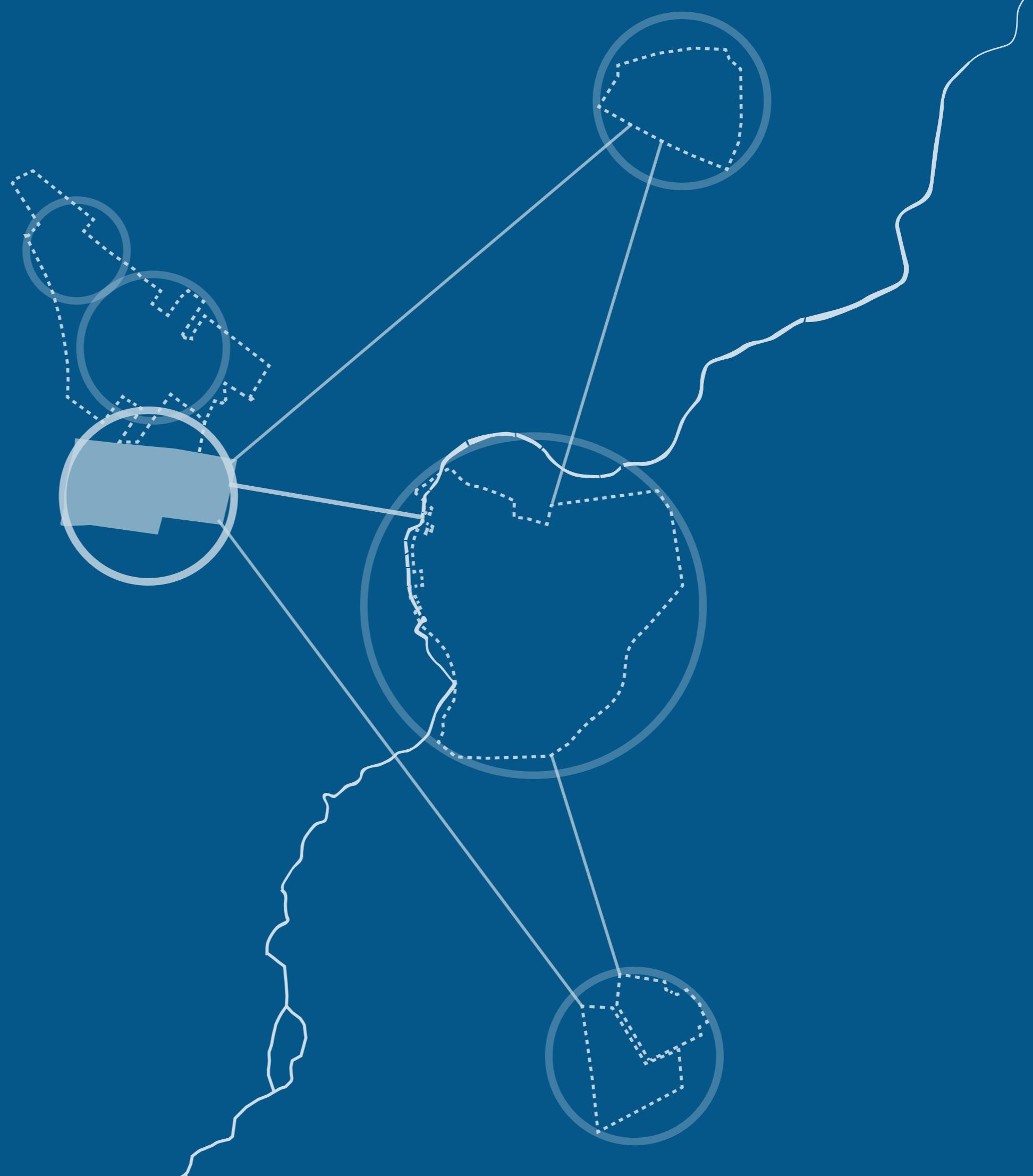
0.4.11 Sets out a description of the key places within the masterplan and their transformation.

A - DESIGN AND ACCESS STATEMENT

A1 University need	A2 University vision	A3 Development context	A4 Masterplan development process	A5 Proposed development
<p>West Cambridge 1995 - 2015</p> <p>Key issues:</p> <ul style="list-style-type: none"> Delivery of the 1999 Masterplan Delivery of commercial uses On-site amenity and shared facilities Making best use of the site 	<p>West Cambridge - a new trajectory</p> <p>5 University Objectives</p> <p>Key issues:</p> <ul style="list-style-type: none"> Optimise and enhance the site Support commercialisation of knowledge Create and sustain a high quality place Flexibility and efficiency Deliver sustainable development 	<p>International, Strategic and Local</p> <p>Strategic context</p> <p>Town Planning context</p> <p>Transport context</p> <p>Local context</p> <p>Site description</p> <p>Existing consented masterplan</p> <p>Benchmarking analysis</p> <p>Key issues:</p> <ul style="list-style-type: none"> Setting this development proposal within its local and wider context 	<p>University response</p> <p>Design response</p> <p>Evolution of the proposals</p> <p>Key issues:</p> <ul style="list-style-type: none"> A comprehensive development strategy and flexible framework for development Sustainability Strategy Requirements of Current and Future Occupiers Opportunities for transformation Evolution of the proposals in response to consultation 	<p>Description of Development</p> <p>Demolitions</p> <p>Parameter Plans</p> <p>Key issues:</p> <ul style="list-style-type: none"> Application Zones Development Building Zones Land use Access and Movement Landscape and Public Realm Maximum Building Heights

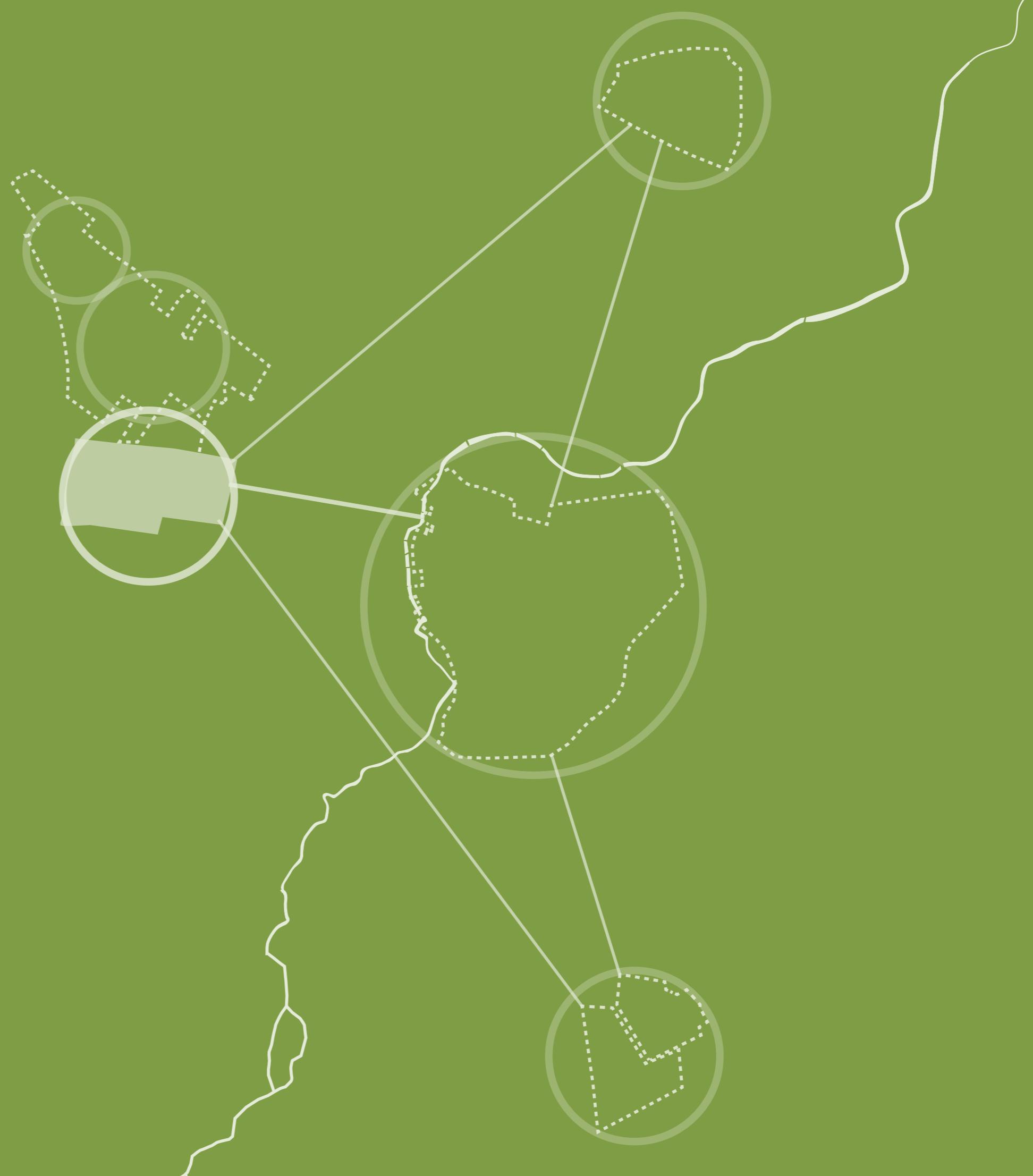
B - ILLUSTRATIVE MATERIAL

B1 Illustrative design principles	B2 Illustrative masterplan	B3 Transformation of key spaces
<p>Connectivity</p> <p>Character</p> <p>Community and open space</p> <p>Climate</p> <p>Key issues:</p> <ul style="list-style-type: none"> Distribution of Land uses Amount of Development Layout and Scale Landscape Appearance, and Access 	<p>Illustrative masterplan</p> <p>Illustrative phasing</p> <p>Interim activities</p>	<p>Key places</p> <p>Streets and green links</p>



**DESIGN AND ACCESS
STATEMENT**

VOLUME A



UNIVERSITY NEED

A1

A1 University need

West Cambridge 1995 - 2015

Key issues:

- Delivery of the 1999 Masterplan
- Delivery of commercial uses
- On-site amenity and shared facilities
- Making best use of the site

A2 University vision

A3 Development context

International, Strategic and Local

A4 Masterplan development process

A5 Proposed development

1. UNIVERSITY NEED

1.1. Drivers for development

1.1.1 Cambridge is an acknowledged world leader in higher education, research and knowledge based industries. Through the 'Cambridge Phenomenon' it has a prosperous and dynamic economic base in high technology, research and development and related service sector industries.

1.1.2 The need for a new illustrative masterplan and outline planning application at West Cambridge has emerged in response to this strategic need of the City and the University as well as the need to transform and improve the site and to provide a high quality research and innovation environment, for both current and possible future occupiers.

Strategic need of the University and the City

1.1.3 In order to maintain global competitiveness, the University needs to secure additional high quality research space and, in parallel, strengthen its reputation in innovation and collaboration within the industry.

1.1.4 The projections made in 2011 based on annual increases to the size of the estate for the previous five years estimated that there was a 25 year supply of space for academic development. However, the annual estate increase in the referenced period has not reflected the demand and anticipated research growth which is now 5% per annum, followed by related growth in staff numbers. Together with past under investment in central sites, the success in research growth is creating additional demand at an accelerated rate (from University's Estate Strategy, 2012).

1.1.5 Similarly, the demand for commercial property to meet the needs of research and development (R&D) businesses in and around Cambridge is far outstripping the supply of space, particularly within the City boundary, where much of the demand is located.

1.1.6 Most of the University's sites are already intensively developed. The partially developed 66ha West Cambridge site is one of the two main exceptions to this, together with 150ha at the North West Cambridge site for future development.

1.1.7 For many years The University's strategy for West Cambridge has been to develop the site for research in the Physical Sciences and Technology. That strategy was supported at the time the original outline planning application was considered in 1997-99.

1.1.8 The locational strategy for other academic development is to develop the life sciences at and close to Cambridge Biomedical Campus and the Biocentre (in central Cambridge), and the arts and humanities at the Sidgwick Site and the New Museums Site. The University's land at those locations is already densely developed.

1.1.9 The focus of academic research in the physical sciences at West Cambridge also provides these academic researchers with far greater opportunity to co-locate with commercial operators undertaking research and development activity. This is a key benefit in helping to keep the University's research world-leading, providing access to appropriately diversified sources of funding and promoting the site as a campus for innovation and exchange of ideas.

University's sustainability targets

1.1.10 The University is committed to improve the sustainability performance of its estate. The University's estate-wide targets include:

- optimise sustainable use of resources and resilience to climate change;
- improve transport and local connectivity;
- substantially improve users' health, social and economic wellbeing through improvement of the social realm across the site;
- have a positive impact on ecology, quality of the city and the reputation of the University.

1.1.11 Redevelopment of the West Cambridge site will provide the University with an opportunity to achieve significant improvements in a coordinated way. A comprehensive, planned redevelopment which addresses the issues of density and enables sustainable transport will provide long term benefits which exceed plot by plot improvements.

Need to transform and improve the site

1.1.18 Considering the amount of the remaining permitted development and large areas excluded from the original Masterplan, it is becoming clear that the current framework will not make the best use of this site, and will result in a development of uneven and lower densities. This will deprive the University and the City of much needed space for employment growth and will also reduce the efficiency and sustainability of the wider estate and undermine delivery of social spaces and sustainable transport.

1.1.19 Development already existing on the site either pre-dates the mid 1990s (such as the Veterinary School, Cavendish Laboratory or Schlumberger Research) or is based on the West Cambridge Masterplan, prepared in 1997. An outline planning application based on the West Cambridge Masterplan was granted in 1999 (application ref. C/97/0961/OP) and a subsequent review was approved in 2004.

1.1.20 Together with the pre-existing development on the site, the 1999 Masterplan envisaged just under 250,000m² of development on the 66 ha site, approximately 47% of which would be academic, 15% research institute and 22% commercial research. The remaining 16% would consist of shared facilities, sports and residential uses. Importantly, the 1999 Masterplan was not required to address pre-existing areas (the very low density Department of Veterinary Medicine precinct and the architecturally undistinguished Cavendish Laboratory).

1.1.21 The University continues to deliver successful academic and other University related buildings within the framework of the 1999 Masterplan, and has already delivered more than 60% of the permitted academic development. However, less than 12% of the permitted commercial development has been achieved and these uses were originally envisaged to be developed in parallel. On site amenity has generally lagged development and has been delivered within plots. Large surface parking areas in front of buildings have further contributed to lack of interaction and activity in the public realm.

1.1.22 As part of the Masterplan revision, important measures will have to be undertaken to create and maintain a successful commercial research address, fostering interaction but avoiding possible conflicts with the independence of academic research and teaching activity.

User requirements: types of spaces, adjacencies and synergies

1.1.12 Given the limited supply of land available at West Cambridge and other operational sites, the University faces a major challenge in meeting the needs of development in the short, medium and long term.

1.1.13 New development at the West Cambridge site will enable the Physical Sciences and Technology to move from cramped and outdated accommodation to buildings that are fit-for-purpose for 21st century science, and which enable the research base to diversify and grow.

1.1.14 In the University's Capital Plan, major new proposals for development at the site include Cavendish Laboratory redevelopment (at a new location on the site); relocation of the remaining four Divisions of the Department of Engineering, currently located at Trumpington Street, to collocate with the two Divisions already established at the West Cambridge Site; relocation of the Vet School from West Cambridge; and the provision of a Shared Facility Hub.

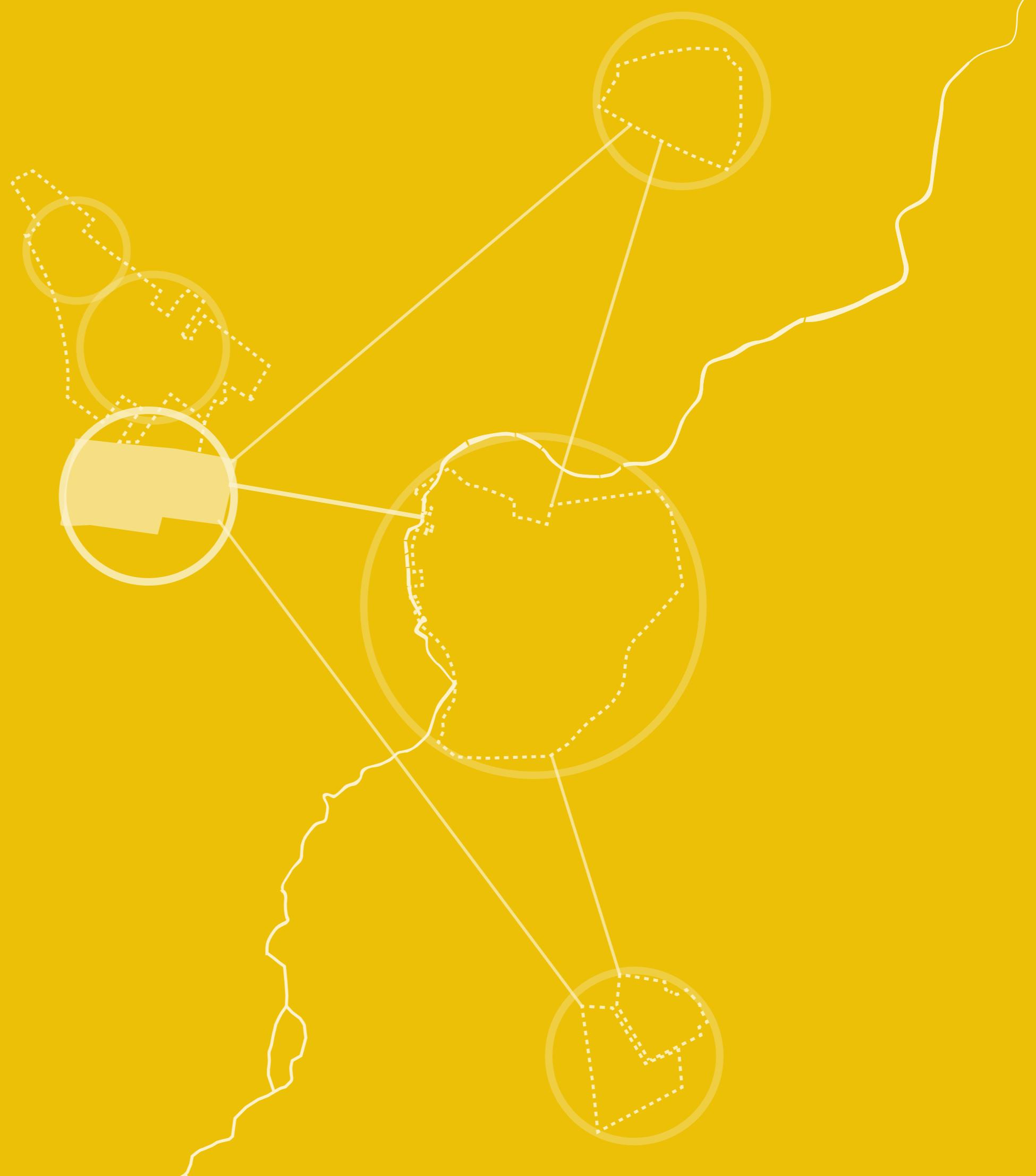
1.1.15 In addition, the site would also support future moves of other University departments/institutes in the Physical Sciences and technology, as well as growth in the established research base at the site. Future opportunities for relocation would be identified through the University's annual cycle of academic planning, then explored through development of an academic business case (including the potential fundraising opportunities), and if agreed by the University, developed through detailed design proposals and the town planning process.

1.1.16 Based on feedback from key current and potential future occupiers, as well as world class benchmarks, the emerging academic and research trends demand flexible and efficient space, which can accommodate changing requirements and also promote collaboration between disciplines and academic and industry entities. The current masterplan, constrained by excluded areas, relatively small plots and large areas of surface car parking, does not support the realisation of such an environment. There is little interaction between existing buildings and delivery of types and scale of spaces required by the new Cavendish Laboratory is not possible on the currently available plots.

1.1.17 The new masterplan is needed to establish principles for gradual growth which respond to requirements for high quality research space, maintain flexibility for future and ensure pedestrian friendly public realm with active indoor and outdoor spaces for socialising.



05. West Cambridge Illustrative Masterplan within wider local context (including the North West Cambridge Development) - view from south



UNIVERSITY VISION

A2

A1 University need	A2 University vision	A3 Development context <small>International, Strategic and Local</small>	A4 Masterplan development process	A5 Proposed development
	<p>West Cambridge - a new trajectory 5 University Objectives</p> <p>Key issues:</p> <ul style="list-style-type: none">Optimise and enhance the siteSupport commercialisation of knowledgeCreate and sustain a high quality placeFlexibility and efficiencyDeliver sustainable development			

2. UNIVERSITY VISION

2.1. West Cambridge: a new trajectory

University objectives

2.1.1 The University of Cambridge has identified West Cambridge as one of its key sites for growth, best placed for clustering of physical sciences and technology and collaboration with industry research.

2.1.2 The new masterplan proposals aim to establish a new trajectory for development and gradual transformation of the West Cambridge site into a lively research campus, accessible and integrated with the City, and which can equally well accommodate users' interaction and demanding scientific processes. By facilitating research excellence and innovation, West Cambridge will help to retain and attract staff and enable future research growth, thus strengthening the University's international reputation.

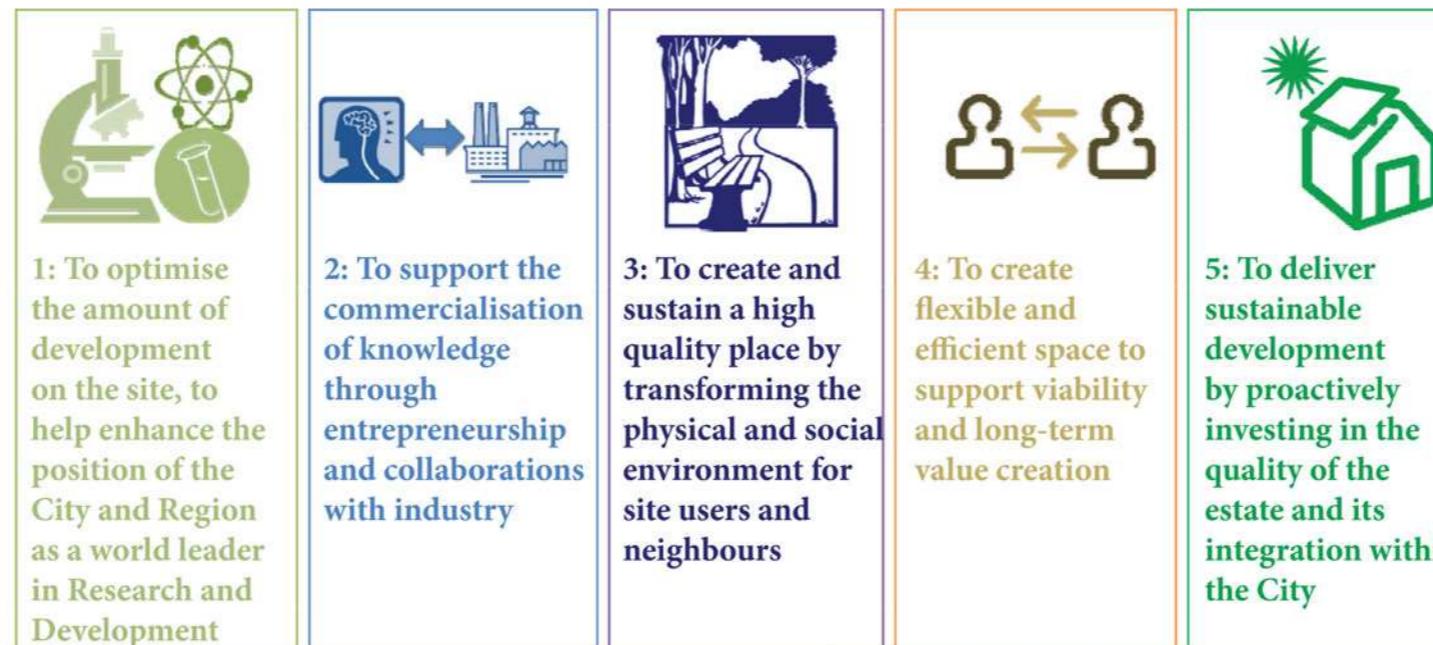
2.1.3 Research and teaching will continue to be the primary uses, but these must be strongly supported by social amenities and commercial research workspaces to promote a new social life and knowledge exchange. In response to this, the masterplan has been shaped by the building and operating requirements of teaching, academic and commercial research as much as by requirements for social interaction. By favouring a moderate density of built form a greater population can support a new level and range of activity on the site.

2.1.4 The current piecemeal development on plots will be abandoned in favour of a character based approach where the site will be transformed by the introduction of a new, clear landscape and open space framework, incorporating existing spaces, landscape planting and streets.

2.1.5 At-grade car parks will be removed and parking relocated into multi storey structures located at the periphery of the site, enabling an increase in density but also an emphasis on cycle movement and pedestrian activity and comfort throughout the site.

2.1.6 The University has established five key objectives to deliver the vision and guide the Proposed Development:

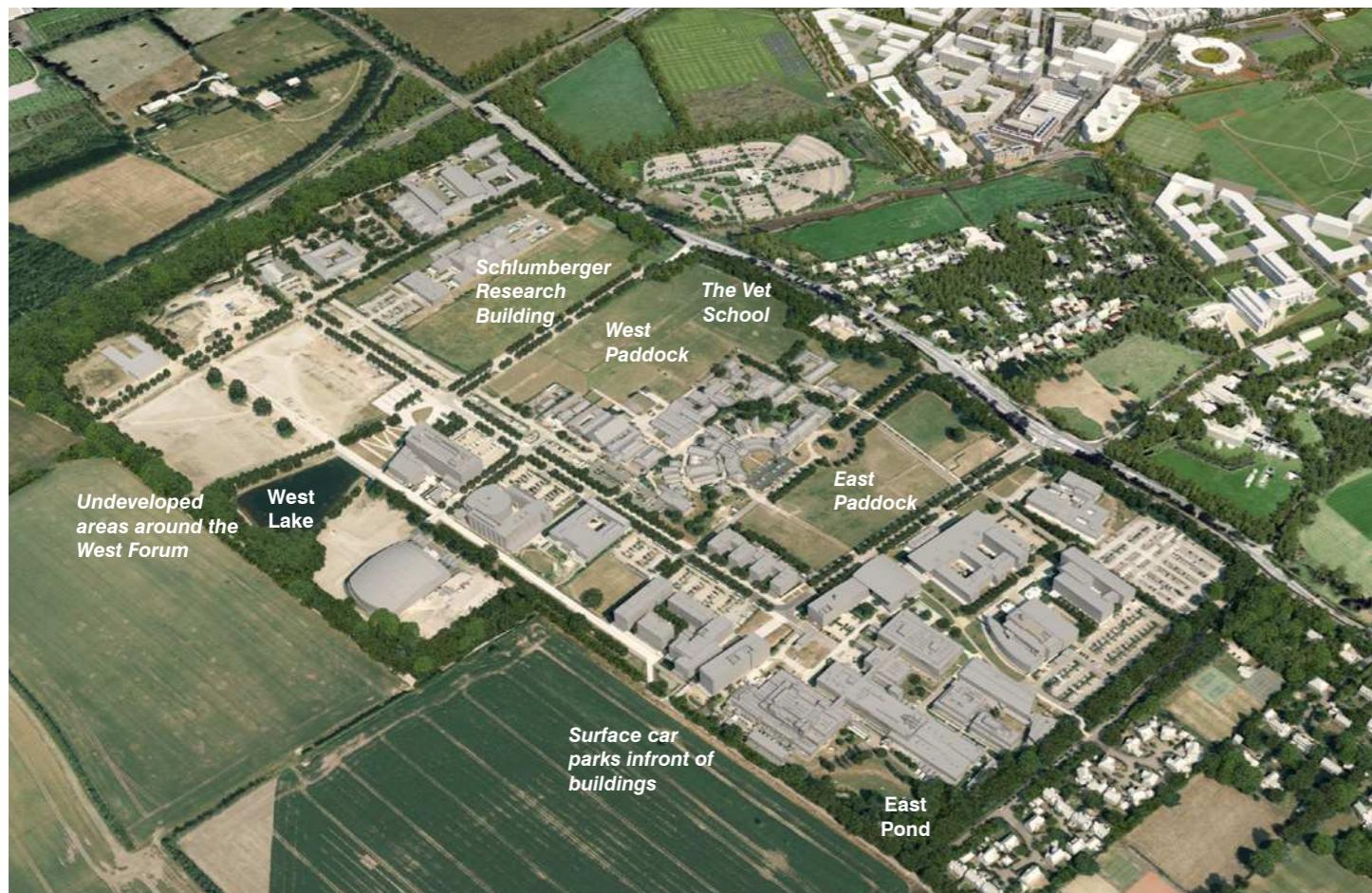
- **Optimise the amount of development** on the site, supporting the City and Region as a world leader in learning, teaching, research and development;
- **Support the commercialisation of knowledge** through entrepreneurship and collaboration with industry;
- **Create and sustain a high quality place** by transforming the physical and social environment for site users and neighbours across the City;
- **Deliver adaptable and efficient space** to support viability and long term value creation;



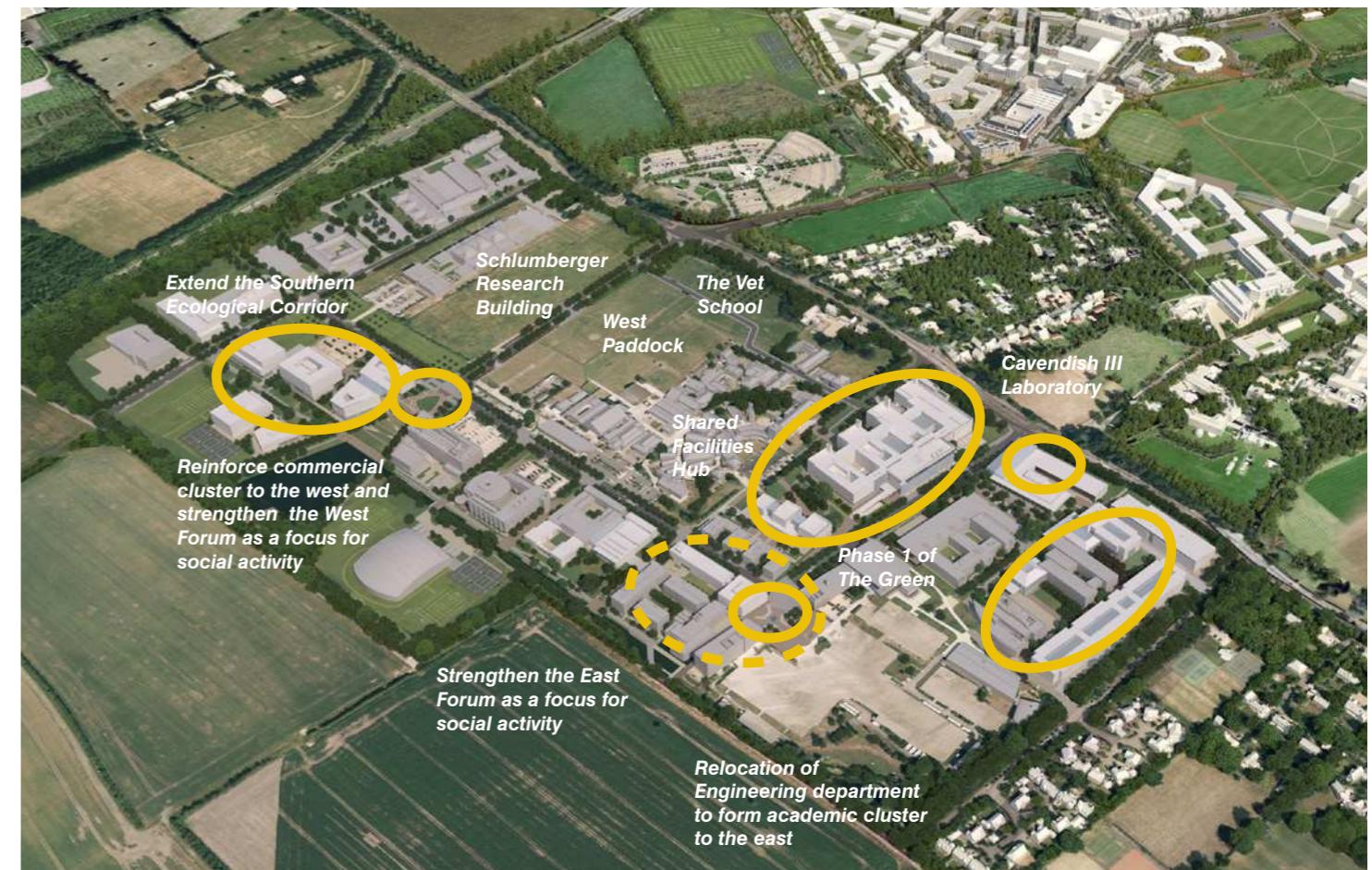
- Deliver **sustainable development**, pro-actively investing in the quality of place and integration within the City.
- 2.1.7 The new masterplan seeks to transform the site by recognising and building on a number of site-related opportunities, which will contribute wider benefits to the University and the City:
 - Promote **sustainability** and improve the University's performance on a site unhindered by historic structures and dense urban form found in the city centre;
 - **Sustainable transport strategy**, as the key tool for the transformation of the site, aiming to reduce the reliance on cars and domination of at grade car parks by improving **public transport**, concentrating car parks along the edges and thus freeing public space for **pedestrians and cyclists**;
 - Provide a necessary space for a City-wide step change in **entrepreneurship and employment growth**;

2.1.8 Development at West Cambridge will be incremental, with the initial stage 'Priority Projects' concentrating new academic development in the east, forming this new density and a renewed activity from the outset.

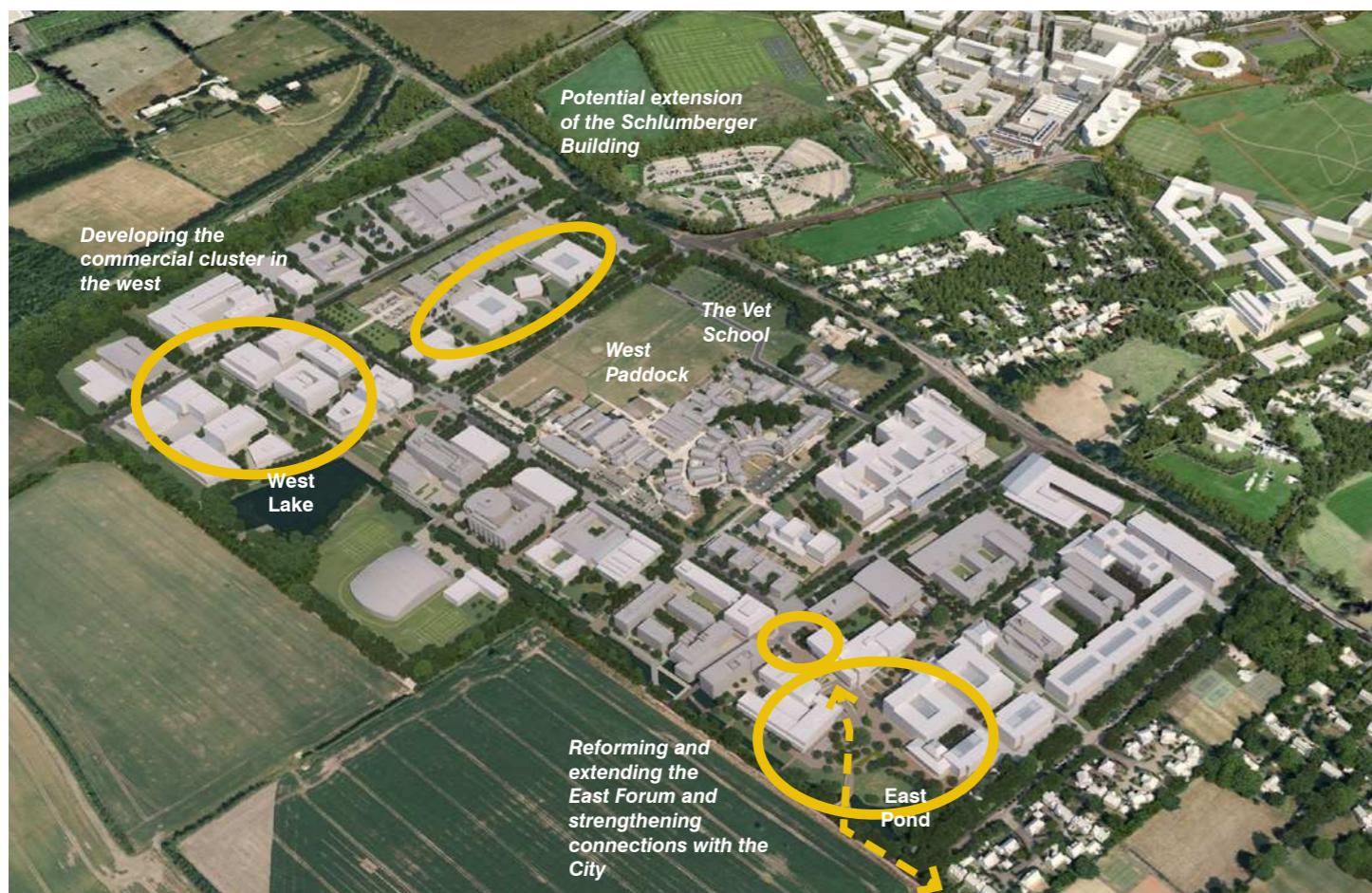
"THE CHANGING CONTEXT AROUND WEST CAMBRIDGE WILL CREATE CONDITIONS FOR A NEW TRAJECTORY FOR THE FUTURE OF THE SITE. FROM THE OUTSET THERE IS POTENTIAL FOR THE SITE TO BE TRANSFORMED AND TO GROW INTO A RENOWNED RESEARCH AND TEACHING ENVIRONMENT"



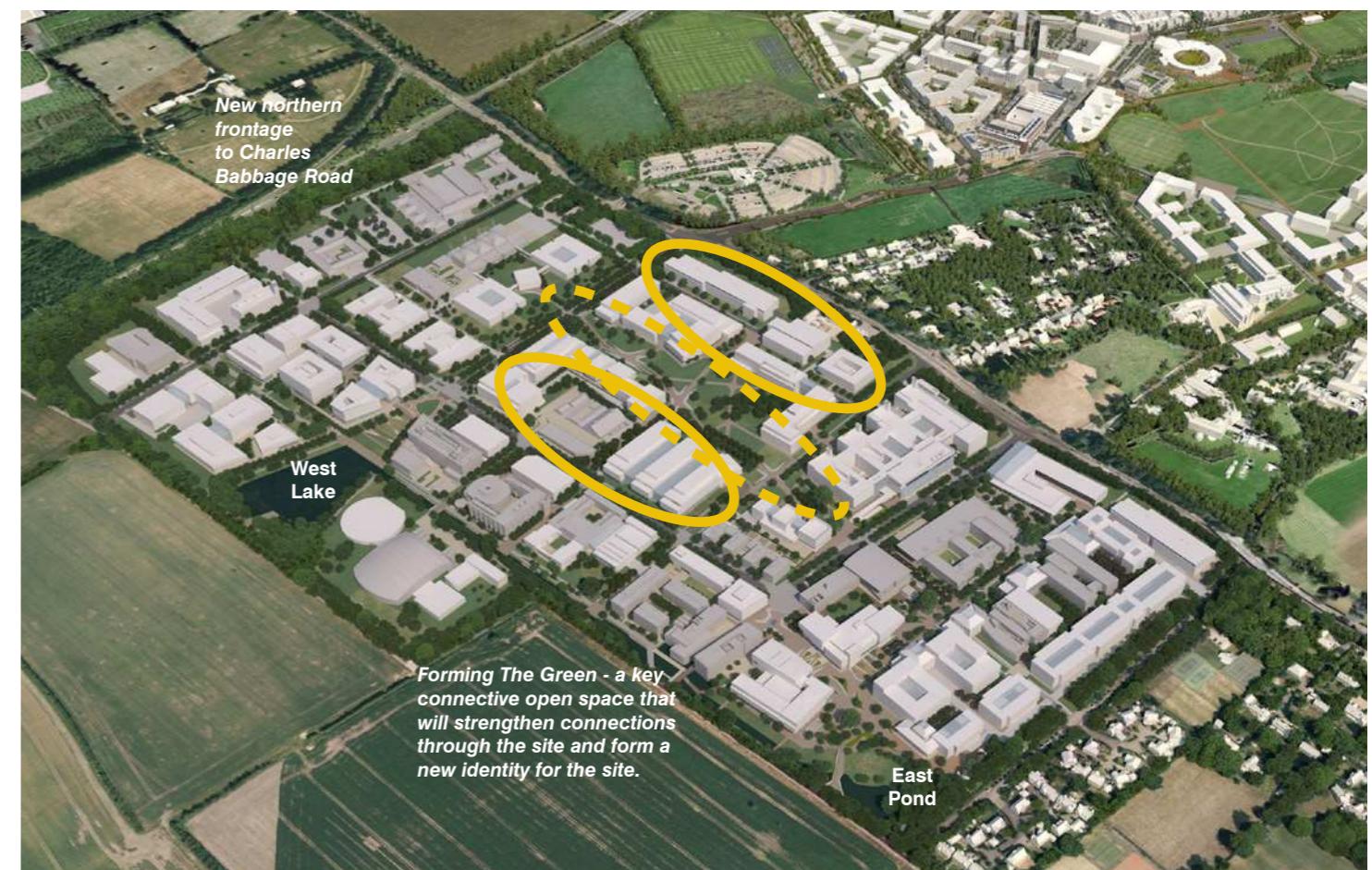
07. West Cambridge site - existing condition



08. West Cambridge site - Phase 1 Priority Projects



09. West Cambridge site - interim condition



10. West Cambridge site - full development

2.2. Vision for West Cambridge: Gradual transformation of place

2.2.1 Key to forming a new University Science and Technology cluster at West Cambridge is the physical transformation of the site. The transformation will:

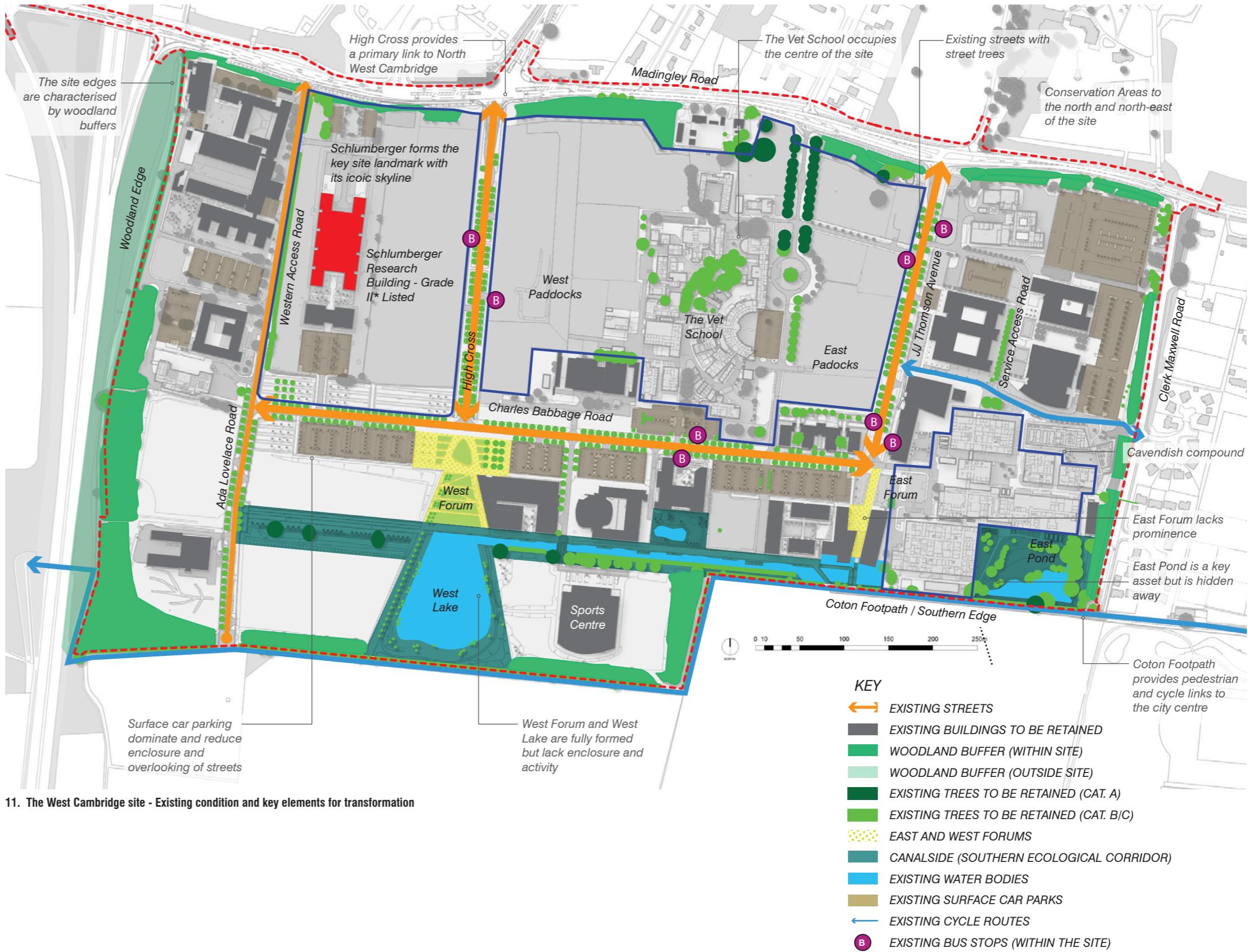
- provide a new and improved identity for the site that serves to enhance the University's national and international reputation;
- firmly establish West Cambridge (with the neighbouring North West Cambridge Development) as a new place within the city of Cambridge;
- create a new working environment that is attractive for University staff and students and is able to attract and retain commercial occupiers;
- increase the density of the site to ensure a new, greater population of users. This population will be supported by additional social amenities, recreational space, public realm as well as supporting uses and working space;
- transform the character of existing places and streets already within the site.

2.2.2 The intention is for a gradual transformation over time as new academic and commercial occupiers move in. Streets and spaces will be upgraded in-line with new development coming forward, for example JJ Thomson Garden, parts of the Central Green Link and the upgrade of JJ Thomson Avenue will take place in parallel with the development of the new Cavendish III Laboratories.

2.2.3 However it is important that the site does not continue to grow in a piecemeal way, but to cluster growth (initially around the Forums) to ensure that concentrations of development and activity can be formed.

2.2.4 There are high quality existing elements within the site that lend West Cambridge a certain character and identity. The proposed development aims to ensure that these are retained and reinforced or supplemented. These elements are:

- The Grade II* Listed Schlumberger Research Building which is an iconic building within the site. The proposed development aims to reinforce the prominence of this building and ensure that it remains the primary landmark building for the site;
- The Canalside, West Lake and East Pond already form a series of key spaces within the site as well as space for the strategic pedestrian and cycle network. The proposed development aims to retain these spaces, reinforce their ecological role and ensure that the existing water bodies form part of the social amenity of the site while retaining their drainage role;



- Woodland buffers at the boundary provide character to the site but also to the surrounding streets. The buffers perform the crucial role of screening the site from views from the south, west and east as well as in the north protecting the setting and character of Madingley Road and the two Conservation Areas to the north and east of the site;
- There are existing specimen trees in various locations throughout the site and much of the existing streets are furnished with street trees. The intention of the proposed development is to retain these trees and allow them to grow to maturity in the long term. In addition new tree planting throughout the site will ensure that the green character of the site can be retained and reinforced.

2.2.5 However, certain elements require improvement. Key elements considered for transformation are:

- The East and West Forums have already been established and the proposed development aims to safeguard their prominence as key places, integrate them into a wider pedestrian network and ensure greater definition and enclosure from new development;
- The existing streets are at present monotonous, car dominated and lacking in enclosure. In the same way as the Forums, these streets shall be integrated into a greater landscape and movement framework, and the aim of the proposed development is to ensure that these routes are transformed into walkable streets which incorporate new levels of pedestrian activity and cycle movement.

2.2.6 In addition, the proposed development seeks to promote legibility by creating a new landscape framework of different but connected routes and spaces - from urban streets, to boulevards, to Green Links and pedestrian lanes.

2.2.7 With this aim of the promotion of a new site-wide landscape framework, a new open space element will be formed - The Green. This new east-west space will address the present lack of connection and legibility across the site and will link the site from east to west. Most importantly this new space will provide new visual connections by establishing a new view corridor from the east of the site to the iconic roof-line of the Schlumberger Research building.

2.2.8 The proposed development establishes a new wider network that builds on the existing streets within the site, connects to the city via the Coton Footpath and forms links to the adjacent strategic network now being developed at the North West Cambridge Development, ensuring that the West Cambridge development becomes a strongly integrated part of the City.



Places for Meeting



New Social Facilities



New Working Environments



A Pedestrian Place - Introducing Activity



Encouraging Different Ways of Working



Collaboration and chance encounters



Places for Relaxing



Places for Collaboration



Student and Staff Experience



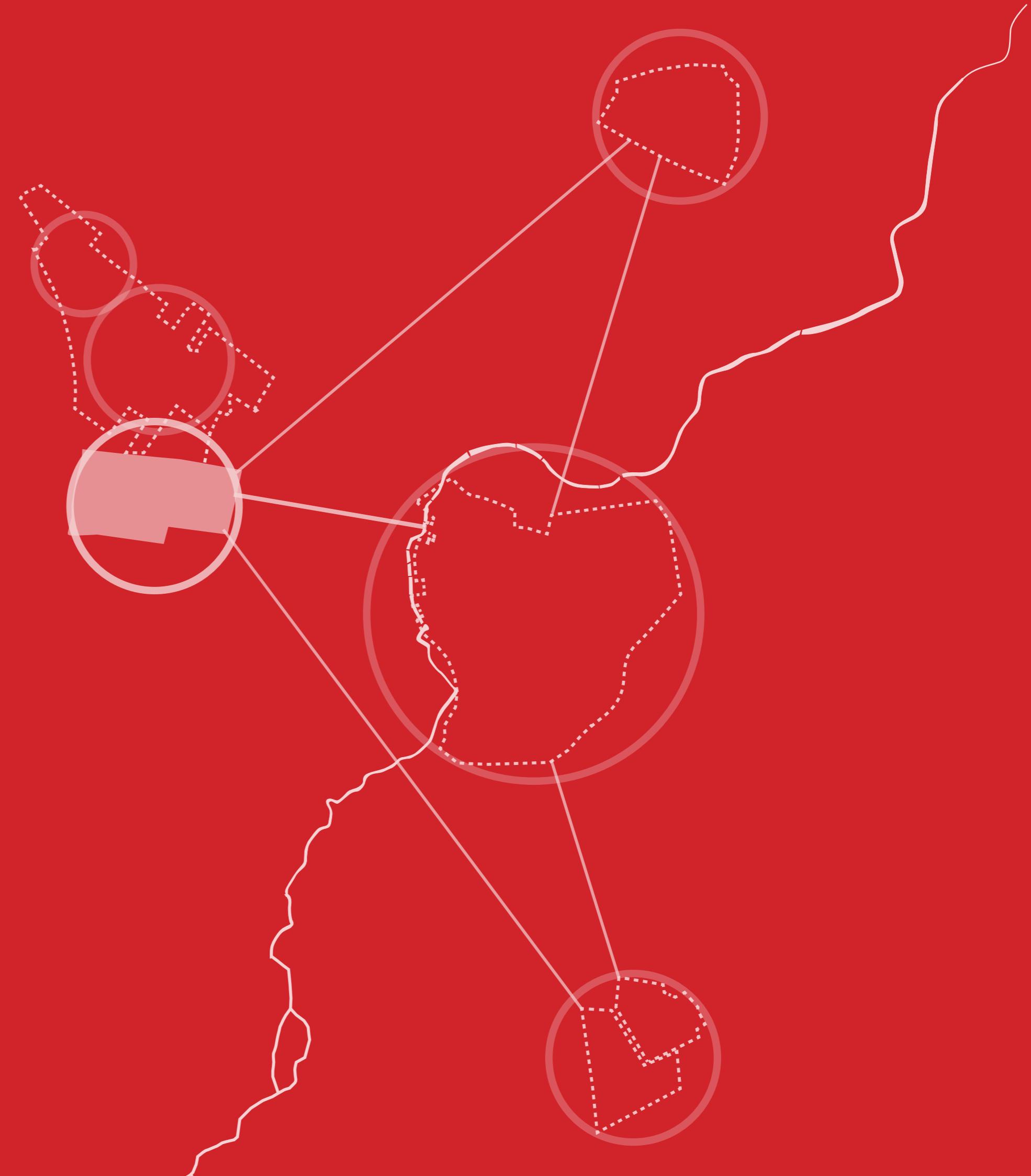
Social Places



Promoting Interaction



Events and Extra-curricular



DEVELOPMENT CONTEXT

A3

A1 University need	A2 University vision	A3 Development context International, Strategic and Local	A4 Masterplan development process	A5 Proposed development
		<p>Strategic context Town Planning context Transport context Local context Site description Existing consented masterplan Benchmarking analysis</p> <p>Key issues: Setting this development proposal within its local and wider context</p>		

3. DEVELOPMENT CONTEXT

3.1. Strategic context

Site location

3.1.1 Cambridge City has seen a significant economic and population growth over the last decades, which is expected to continue.

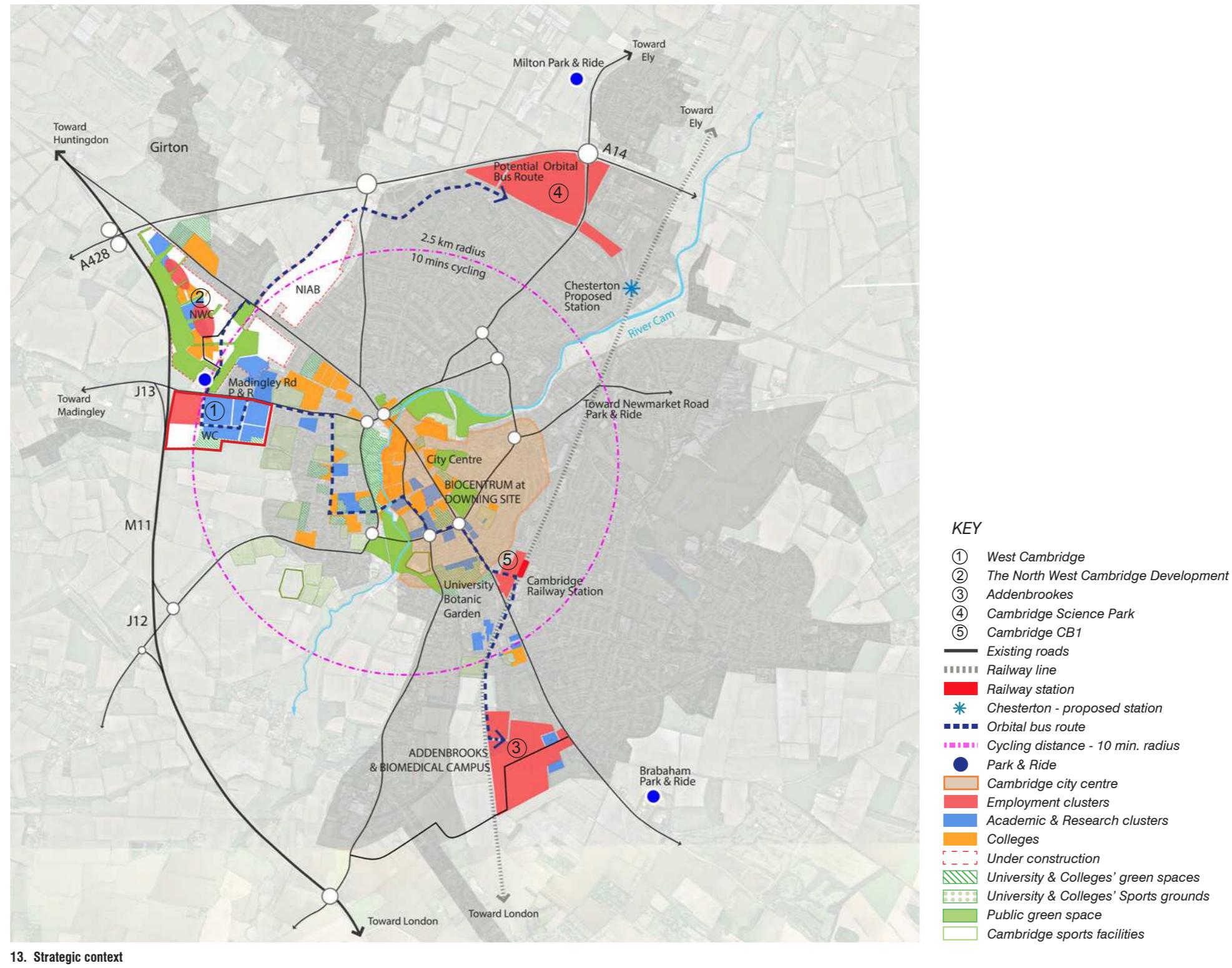
3.1.2 There are several major areas of change located outside the city centre, which include both residential and employment growth areas. South Cambridge, (where several residential developments and a biomedical campus are now developing) and CB1 (a high density mixed used development adjacent to the Railway Station) are key strategic developments for the city. In addition, the north-west part of the city, where the West Cambridge Site is located, is undergoing a significant level of transformation. Alongside the West Cambridge site, this north western development cluster incorporates Darwin Green and the University's other major development - the North West Cambridge Development.

3.1.3 The proposed employment cluster comprising both West Cambridge and parts of the mixed use North West Cambridge Development, has the potential to become a significant focus for employment and economic activity, joining the established employment clusters at Addenbrookes and Cambridge Science Park.

3.1.4 Already established as an academic site, West Cambridge is part of the natural expansion of the academic and college sites that occupy the western city centre area.

3.1.5 The location of the site within the City has the following benefits:

- it is a 10 minute cycle distance to the city centre along the Coton Footpath;
- it is within a 20 minute cycle to the station;
- the site is closer to the city centre than both Addenbrookes and Cambridge Science Park;
- the site is adjacent to the M11 and also has good access to the A428; and
- a Park and Ride site is located immediately to the north of the West Cambridge site;
- the site is adjacent to the developing North West Cambridge Development and together have the capacity to form a major academic and research cluster for the city.



Transformation: west of the city

3.1.6 The West Cambridge site is part of an emerging development cluster to the west of the city which includes the University's mixed use North West Cambridge Development (NWCD) site, and residential development at Darwin Green, both located to the north of the site.

3.1.7 Both developments will fundamentally transform this part of the City. NWCD will accommodate a new local centre with community facilities, shops and a hotel, with over 3,000 residential units, 2,000 student rooms and academic and employment areas to follow by 2030. As former green belt land and an area of some ecological importance, the NWCD development includes significant areas of landscaped open spaces, such as the large new landscapes of the Western Edge parklands and the new community's heart - Storey's Field - part of the Girton Gap landscapes that extend from north to south through the site. In addition there is an extensive network of green corridors and landscaped pedestrian and cycle paths weaving through the development areas.

3.1.8 From the outset, it was part of University's vision to provide these amenities for the wider community beyond the limits of the development site. By means of increased density of both population and amenities, the development aimed to provide a focus for the west of the City, transforming the character and role of the area from suburban to urban.

3.1.9 From the completion of the first phase, NWCD will introduce transport improvements, including an additional public transport service between the local centre and the city centre and station (via West Cambridge), and a new vehicular link between Huntington and Madingley Roads. This link will provide conditions for a future orbital bus route to reach West Cambridge linking through NWCD and the Darwin Green site to the Science Park and then east to the proposed station at Chesterton.

3.1.10 The road and cycle network of NWCD will link to the existing High Cross and JJ Thomson Avenue junctions on Madingley Road and thus enable easy access between the two University developments, for vehicles, cycles and pedestrians.

3.1.11 NWCD will bring a new, greater residential population in close proximity to the proposed employment and research uses on West Cambridge site and in addition provide the working population of West Cambridge with access to:

- A new local centre providing a focus for the west of the city including local shops, a food store, health centre and hotel;
- University Housing for staff and post graduate students;
- Market housing;
- A 3-form entry University Primary School;
- A Nursery and Community Hall;
- Major public open spaces (including Storey's Field and the Western Edge);
- Sports pitches and playing fields (including cricket and football) and children's playgrounds;
- Additional academic and commercial space; and
- Connecting cycle routes and significant transport improvements.

KEY

1	Local Centre (Market Square)
2	Foodstore
3	Primary School
4	University Nursery & Community Hall
5	Hotel
6	University Housing
7	Ridgeway Village - mixed housing
8	Storey's Field public open space
9	Western Edge public open space
10	Sports Fields
11	Academic cluster - Madingley Rise
12	Academic and commercial clusters
13	Storey's Field Village - mixed housing
14	Girton Gap landscapes



14. West Cambridge Site within the wider local context (including the emerging North West Cambridge Development)

Existing landscape context

3.1.12 Cambridge has a distinct character and landscape setting: the diversity of historic buildings and conservation areas, the colleges, the river, the commons, open spaces, natural features and habitats all contribute to the distinctiveness and uniqueness of the City's landscape.

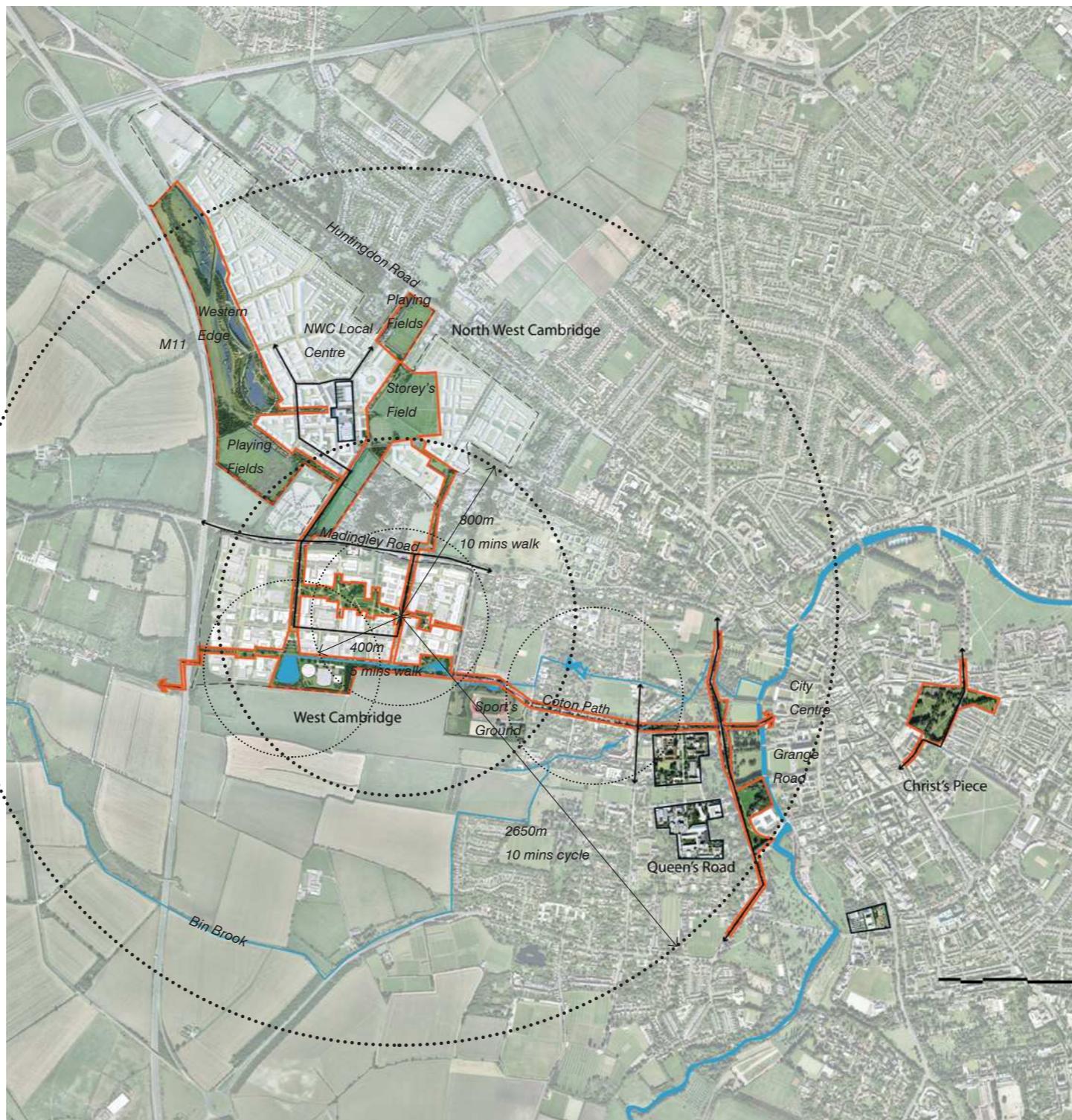
3.1.13 The rural landscape of Cambridgeshire is particularly close to the west of the city, and is defined by large arable field parcels with an open aspect. Remnants of this agricultural landscape can be seen throughout the city, found in boundaries, markers such as trees, hedges and ditches that define the network of open spaces and routes that have shaped the urban grain. However, there is limited visual connection to the city from this rural landscape.

3.1.14 The association between public open space, private space and the density/scale of the built environment are particularly marked within the city centre, and the connections that form the network between these spaces are typically reinforced with mature avenues or lines of trees, formal boundaries, with a clear distinction between private and public functions.

3.1.15 The site at West Cambridge offers and contains many of the features that are seen throughout the city and this green infrastructure includes native hedgerows, mature avenues of native trees, woodland boundaries and green buffers and areas of naturalised open water with marginal planting.

3.1.16 The new masterplan now borrows from Cambridge city centre and brings to the west a set of the city's other green elements. These new spaces, which include pedestrian lanes, ecological/wetland landscapes, landscaped gardens, public commons or greens and enclosed courts are weaved through and between the existing landscape features to form a new green framework.

3.1.17 The overall landscape concept is to create a series of elements and spaces that are cohesively joined to form an overall site strategy that responds to place, character and the masterplan reinforcing a legible hierarchy of space.



15. West Cambridge strategic context - connective landscapes

Existing landscape types

3.1.18 Key to the transformation of West Cambridge will be the creation of a strong landscape and open space character, with visual connection to the city centre. This will include a series of well-defined new urban spaces, reinforced landscape connections and upgrading the existing internal and surrounding street network. The development strategy seeks to create a new hierarchy of spaces through the site that will aid legibility, create a strong visual identity and form the setting for new events and recreation that will become integral to the life of West Cambridge.

3.1.19 To create a unified but distinct landscape that's relevant to Cambridge, we have selected a series of attributes from three identified character zones which been reinterpreted and used within the Green Infrastructure design

Agrarian landscapes



16. Coton Countryside

Transitional landscapes



17. The Backs

Structured landscapes



18. Garrett Hostel Lane

Agrarian

Precedent: Coton Countryside Reserve

Defined by: *Informal mixed species rich hedgerows; specimen trees within hedgerows; biodiverse open grasslands and species rich meadows.*

Transitional

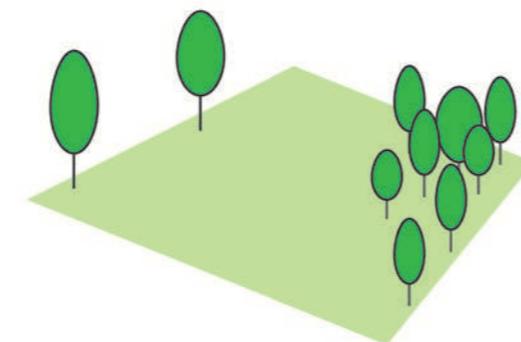
Precedent: King's Back, Cambridge

Defined by: *Integrated Landscape – hard and soft, meandering paths with ornamental tree and shrub planting; informal tree planting along flood plains; drainage ditches and canals.*

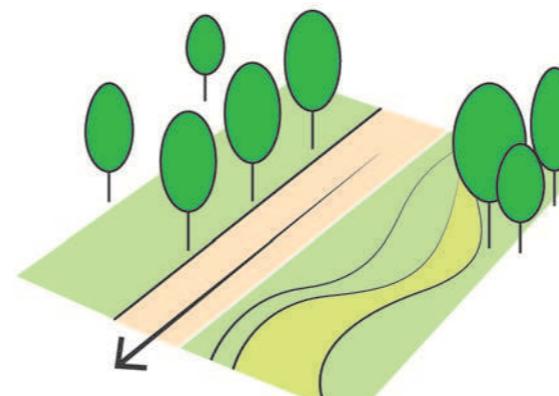
Structured

Precedent: *landscapes in the City*

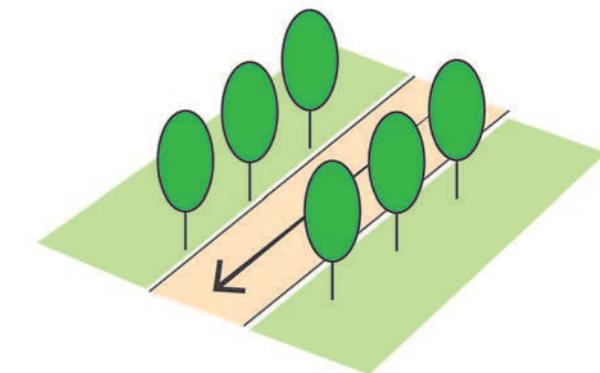
Defined by: *Geometrical planting & avenue tree planting; formal hedgerow planting; managed lawns with mature trees, clear boundary treatments.*



- *Informal mixed species rich hedgerows*
- *Specimen trees within hedgerows*
- *Biodiverse open grasslands*
- *Species rich meadows*



- *Integrated landscape – hard and soft*
- *Meandering paths with ornamental tree and shrub planting*
- *Informal tree planting along flood plains*
- *Drainage ditches and canals*



- *Geometrical planting & avenue tree planting*
- *Formal hedgerow planting*
- *Managed lawns with mature trees*
- *Clear boundary treatments*

19. Landscape characters and elements

3.2. Town Planning context

Cambridge Local Plan 2006

3.2.1 West Cambridge is designated as an Area of Major Change (AOMC) and is recognised as a major allocation for University faculty development, research institutes, commercial research and development, a sports complex, residential and associated uses.

Cambridge Local Plan 2014: Proposed submission

3.2.2 The West Cambridge Site continues to be designated an AOMC in the Cambridge Local Plan 2014: Proposed Submission. Policy 18: *West Cambridge Area of Major Change* sets out the overarching principles for further development of the site.

3.2.3 The University of Cambridge and Cambridge City Council have agreed amendments to the proposed wording of Policy 18 as part of the Examination of the Local Plan through a Statement of Common Ground (SoCG). The revised wording of Policy 18, as set out in the SoCG, is as follows:

1. *Development of this area will be permitted in line with the existing planning permissions.*
2. *For new development, the principal land uses will be:*
 - *D1 educational uses, associated *sui generis* research establishments and academic research institutes; and*
 - *Commercial research and development of products or processes within use class B1(b) that will support knowledge transfer and/or open innovation in respect of D1 higher educational uses, associated *sui generis* research establishments, academic research institutes, and/or other Class B1(b) uses already authorised or granted permission pursuant to this policy.*
3. *Any densification of development on the site that results in a significant increase in floorspace, over that already approved, will be supported providing that:*
 - *A revised masterplan supporting an outline planning application (OPA) has been proposed that takes an integrated and comprehensive approach to the provision and distribution of the uses, and supporting facilities and amenities;*

▪ *Phasing of the development will be determined through the outline planning permission (OPP) and as the need is proven;*

▪ *The approach to appropriate development heights will be determined through the OPP giving consideration to the sensitivity of the Green Belt to the south and west;*

▪ *Proposals respect the important adjacent Green Belt setting to the south and west, and other neighbouring residential uses and views of the city from the west;*

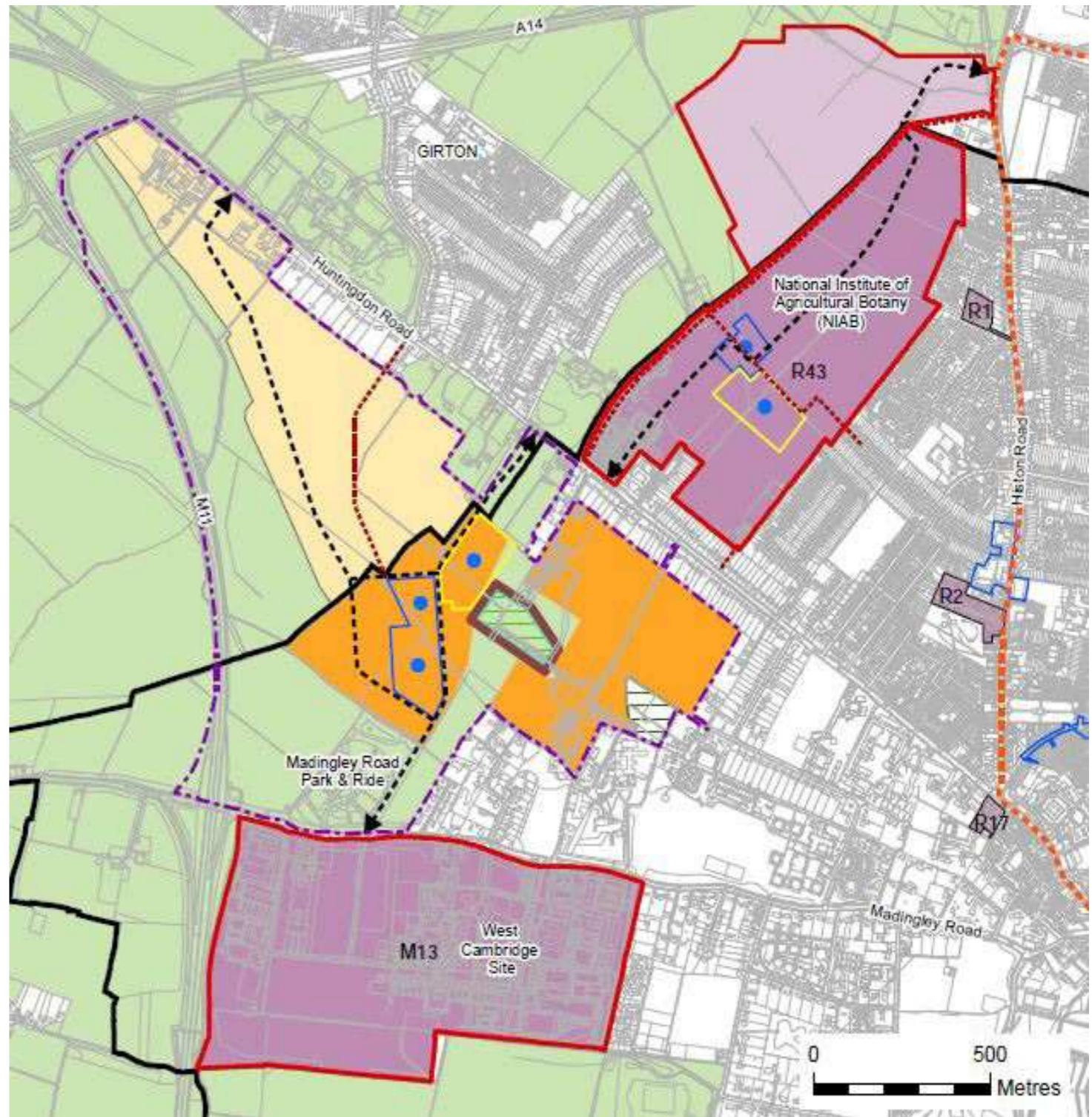
▪ *It includes a comprehensive transport strategy for the site, incorporating a sustainable transport plan to minimise reliance on private cars. This should include assessing the level, form and type of car parking on the site;*

▪ *That walking, cycling and public transport links (including access for all) to the city centre, railway station(s), other principal educational and employment sites, and other key locations within the city are enhanced to support sustainable development; and*

▪ *That proposals provide appropriate green infrastructure which is well integrated with the existing and new development and with the surrounding area.*

4. *The development will also include further phases of the sports centre.*
5. *Small-scale community facilities, amenities, and A1 (local shop), A3 (café), A4 (public house), D1 (crèche) type uses and student accommodation will be acceptable, if they support existing occupants on the site and add to the social spaces and vibrancy of the area, essential to its continued success.*
6. *The council will be supportive of a site-wide approach to renewable or low carbon energy generation or the future proofing of buildings to allow for connections to energy networks.*
7. *The precise quantum of new floorspace will be subject to testing and demonstration through the development of a revised OPA for the site.*

3.2.4 The Proposed Development will make a key contribution to delivering the objectives of Policy 18.



20. Local Plan Policy 18: West Cambridge AOMC

3.3. Transport context

Transport constraints

3.3.1 West Cambridge is well-located with respect to good existing pedestrian and cycle infrastructure to accommodate local non-motorised movement, and the existing bus services already connect to a series of popular destinations.

3.3.2 West Cambridge is being brought forward within the context of wide-ranging uncertainty, including:

- the scale of local residential development included in the Local Plan, still completing its inquiry;
- the impact of the A14 Cambridge Huntingdon Improvement Scheme;
- the deliberations of the Greater Cambridge City Deal and Long Term Transport Strategies;
- the need for enhancement measures along the M11.

3.3.3 The local highway network along the Madingley Road Corridor is characterised by heavy, tidal, peak hour movements into (AM peak) and out (PM peak) of Cambridge. On the strategic highway network, the congestion on the A14 to the north-west has resulted in the Government progressing the A14 Cambridge Huntingdon Enhancement Scheme following the cancellation of an earlier project in 2010.

3.3.4 Existing journey to work trips by Cambridge residents - including University employees involve a much lower car driver mode share than the United Kingdom average. Notwithstanding, there is currently limited constraint to journeys to West Cambridge being made by car, especially to the commercial occupier. Indeed, only recently had any occupier at West Cambridge prepared or agreed an Individual Travel Plan as travel demand management techniques had not started until well after the original development was consented.

Transport opportunities for improvements

3.3.5 Whilst the existing transport infrastructure appears to accommodate the existing requirement, enhancement would be sought to accommodate significant additional development in the area, with further capacity being provided for all modes of transport, especially non-car modes. This is being provided by a wide-ranging, balanced, sustainable transport strategy that includes the following measures:

- the delivery of a strong, quality, development-wide, travel demand management strategy to both the existing and future users of the Site;
- provision of quality pedestrian and cyclist infrastructure both to, and across the Site, reducing existing severance. Of particular interest is the provision of improved cycle connectivity into the City, with additional priority measures across busy roads;
- delivery of quality, regular and accessible bus services to popular destinations, including new link to the north, towards the Chesterton Rail Station and Milton Park and Ride Site;
- appropriately sized site access junctions to maintain the existing highway capacity, and provide priority for pedestrians, cyclists and buses; and
- provision of sufficient car parking places around the periphery of West Cambridge site to minimise car movement within the Development, and the implementation of a car parking provision and management strategy.

3.3.6 These measures will both manage the impact of the proposed Development on the surrounding transport network, and protect the quality and amenity of West Cambridge for all occupiers.

Car parking

3.3.7 In addition to these measures proposed by the University, a range of further strategic measures are being promoted within the Greater Cambridge City Deal to mitigate existing issues, and provide capacity for further development by others across Cambridge.

3.3.8 City Deal aims to enable a new wave of innovation-led growth by investing in the infrastructure, housing and skills that will facilitate the continued growth of the Cambridge Phenomenon. Whilst these City Deal proposals will enhance connectivity to the Development, West Cambridge is not dependent upon its delivery - nor will West Cambridge prejudice the delivery of the City Deal proposals.

3.3.9 Under-provision of car parking within the Site could be detrimental to the street-scene, with "fly-parking" occurring across the area. Similarly, over-provision would be equally likely to be detrimental to the sustainability credentials of the Development, with excessive numbers of car driver trips attracted by the easy car parking provision.

3.3.10 It is proposed that the maximum car parking provision decreases towards the later phases of delivery of the West Cambridge Development as the various transport mitigation measures are implemented.

3.3.11 To ensure that the Development would continually deliver an appropriate level of car parking, a Car Parking Delivery Report will be provided on a regular basis and to support each individual Reserved Matters application.

3.3.12 The on-site car parking will be managed by the University, who will control the issue of car parking permits to occupiers - and to refuse the granting of a permit should there be a suitable alternative to car travel.

3.4. Local context

Surrounding context

3.4.1 The Site is located on the western edge of Cambridge, bound to the west by the M11 Motorway, to the north by the A1303 Madingley Road, to the east by Clerk Maxwell Road, and to the south by open countryside.

3.4.2 Surrounding the site, to the north is located the Park and Ride facility at Madingley Road and the emerging NWCD development. In addition there is a cluster of existing academic uses around Madingley Rise.

3.4.3 To the east is a mixture of residential and sports playing fields while to the south is open countryside, designated as Green Belt. Also to the south, the existing watercourse of Bins Brook runs east to west, forming ponds at the University Sports Ground to the south east of the site.

3.4.4 To the west of the site is the M11 motorway, which forms a strong limit to city growth. Orchards and fields used for agriculture and grazing are located to the west of the M11 and further west of these is the village of Coton. The fields and orchards between Coton and the Site are relatively small and bound by hedgerows and trees. Fields beyond Coton and to the south are larger and more open. Many are still lined by hedgerows but there are far fewer trees. This field pattern of large open fields is also present to the south, between the Site and Barton Road.

3.4.5 To the north and east of the Site there are two Conservation Areas each containing a number of listed buildings: The Conduit Head Conservation Area consists of 1930's modernist housing and the West Cambridge Conservation Area, contains an eclectic mix of neo-Georgian and modernist houses.

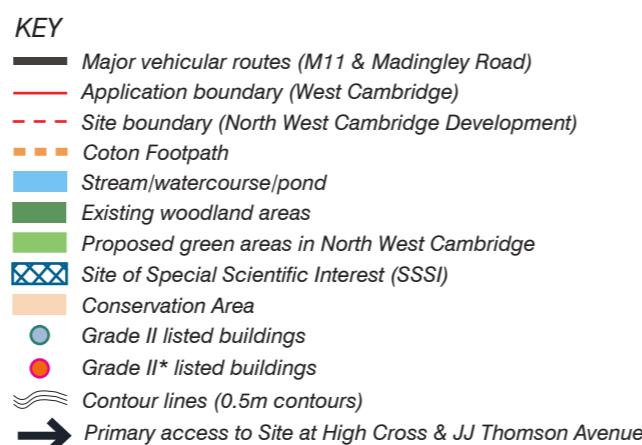
3.4.6 A long distance recreational route; the Coton Footpath, passes along a public footpath along the southern boundary of the Site. Another public footpath

branches off the Harcamlow Way further south of the Site. Further south still is another public footpath travelling from Coton to Barton Road.

3.4.7 The Site is located within the impact zone of Madingley Wood Site of Special Scientific Interest (SSSI). Madingley Wood is a small area of ash-maple ancient woodland and is located approximately 1.8km west of the Site. The Site is also located within the impact zones of two geological SSSIs; Histon Road SSSI located approximately 2.5km north east of the Site, and Traveller's Rest Pit SSSI located approximately 500m north of the Site.

3.4.8 Along the boundaries of the site there is mature woodland buffers, which to the north, lend an agrarian/bucolic character to Madingley Road, a key approach road to the city.

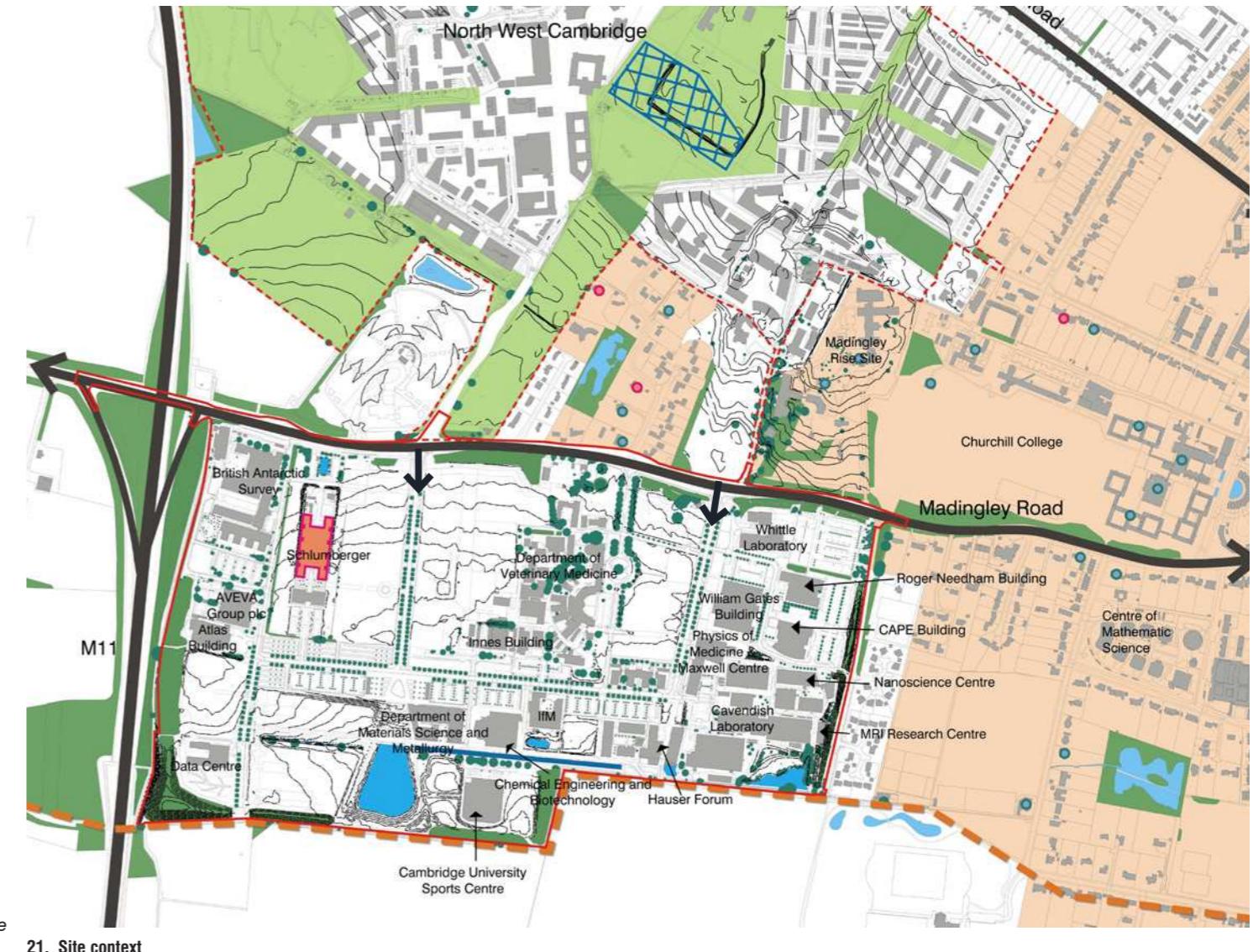
3.4.9 Within the site is the Grade II* Listed Schlumberger Research Building which forms key landmark for the site.



23. Madingley Road to the north



22. Green Belt farmland to the south



21. Site context

24. M11 to the west



25. Madingley Park and Ride to the north-west



Surrounding land uses

3.4.10 The West Cambridge site is 66ha in area and comprises a mix of land uses including academic, commercial, sports, and residential. Large parts of the Site comprise a mixture of roads and footpaths, car parks, unmanaged plots awaiting development, formal landscaped public realm areas, and large paddocks used by the Veterinary School. There are numerous avenues and individual trees of varying ages across the Site.

3.4.11 The Site is divided up and accessed by roads which form a rough grid pattern. There are three main roads crossing the Site in a north-south direction: JJ Thomson Avenue, High Cross and Western Access Road/Ada Lovelace Road.

3.4.12 JJ Thomson Avenue and High Cross, both provide access to the Site from the A1303 Madingley Road. A single road, Charles Babbage Road, crosses the Site in an east-west direction between JJ Thomson Avenue and Western Access Road. In addition there are numerous smaller access roads which service individual buildings and plots.

3.4.13 There are three main clusters of buildings on the Site. The largest cluster of buildings occupies the eastern area, with a mixture of older buildings constructed in the 1970's along with newer buildings in more recent years. The second cluster of buildings is located centrally on the Site and comprises the buildings and paddocks used by the Department of Veterinary Medicine. The third cluster of buildings is located in the north western corner of the Site which are occupied by commercial research tenants; the British Antarctic Survey, Schlumberger, and Aveva. The University Sports Centre is located on the southern edge of the site, well connected to the Coton Footpath.

27. Academic uses at Madingley Rise



3.4.14 The Madingley Road Park and Ride is located just north of the Site and beyond this is the location of the NWCD development, which will provide a new Local Centre, new community uses and residential uses.

3.4.15 Existing academic uses are located to the north of Madingley Road along Madingley Rise - this academic cluster will be reinforced by new academic uses located just to the north within the NWCD site. Churchill College is located adjacent to this.

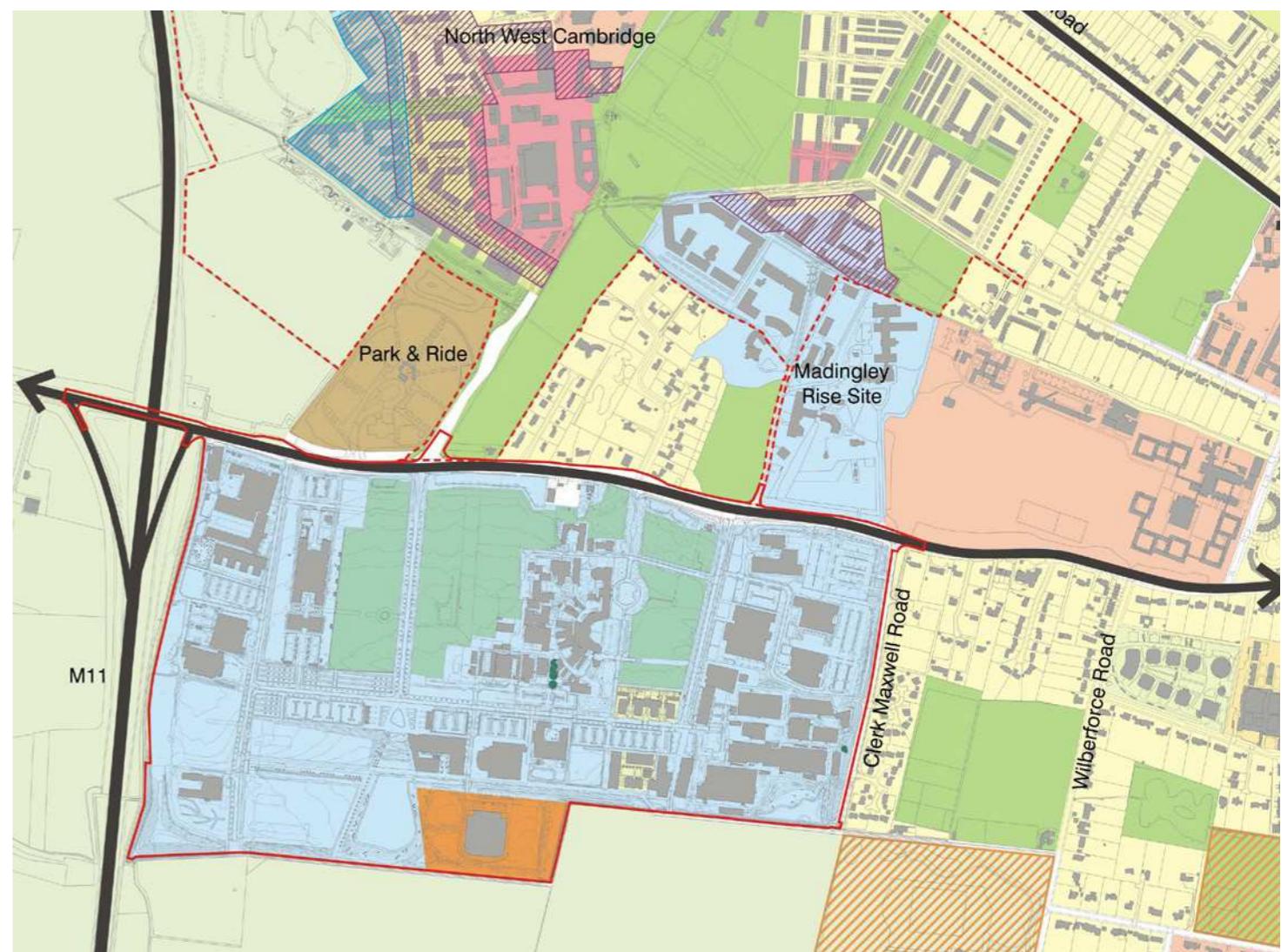
3.4.16 Residential uses are located close by at The Lawns and Perry Court, off Clerk Maxwell Road to the east, and Conduit Head Road and Lansdowne Road off the A1303 Madingley Road to the north.

3.4.17 To the east of the Site and beyond the residential properties at The Lawns and Perry Court, are the Emmanuel College Recreation Grounds and University Sports Grounds. Beyond these, the western suburbs of Cambridge comprise a mixture of residential properties, sports pitches and university buildings.

KEY

- Major vehicular routes (M11 & Madingley road)
- Application boundary (West Cambridge)
- - - Site boundary (NWCD)
- College/Schools
- Residential areas
- Open space
- Research and academic
- Mix uses
- University Sports Centre
- Paddocks
- Park and Ride
- Green Belt
- University & Colleges' Sports ground
- Land use flexibility zone
- Western Edge land use flexibility zone

28. Housing off Clerk Maxwell Road



29. Housing to the north of Madingley Road



30. University Sports Ground to the south-east



Site access, movement and parking

1 **3.4.18 Madingley Road** creates the northern boundary and provides two vehicular access points to the Site: one at High Cross to the west, and another at JJ Thomson Avenue. Both access points also provide access to NWCD to the north (vehicular, cycle and pedestrian).

3.4.19 With completion of the northward link as part of the NWCD works, High Cross junction will become an important access point to the Site, with expected increase in utilisation.

2 **3.4.20 Clerk Maxwell Road at the eastern boundary** provides vehicular access to the Park and Cycle facility in the north east of the site and cycle access to the site. To the east, this road also provides access to two clusters of residential development and the University's sports facilities. It is a wide road, with on-street parking and generous landscaping.

3 **3.4.21 Coton Path to the south** provides direct links to the city centre and other academic sites such as the University Library, Sedgwick and Mathematics. This path is particularly well used by cyclists as a main route to and from the city centre. It also provides access to the University Sports Ground and Sports Centre within the West Cambridge site.

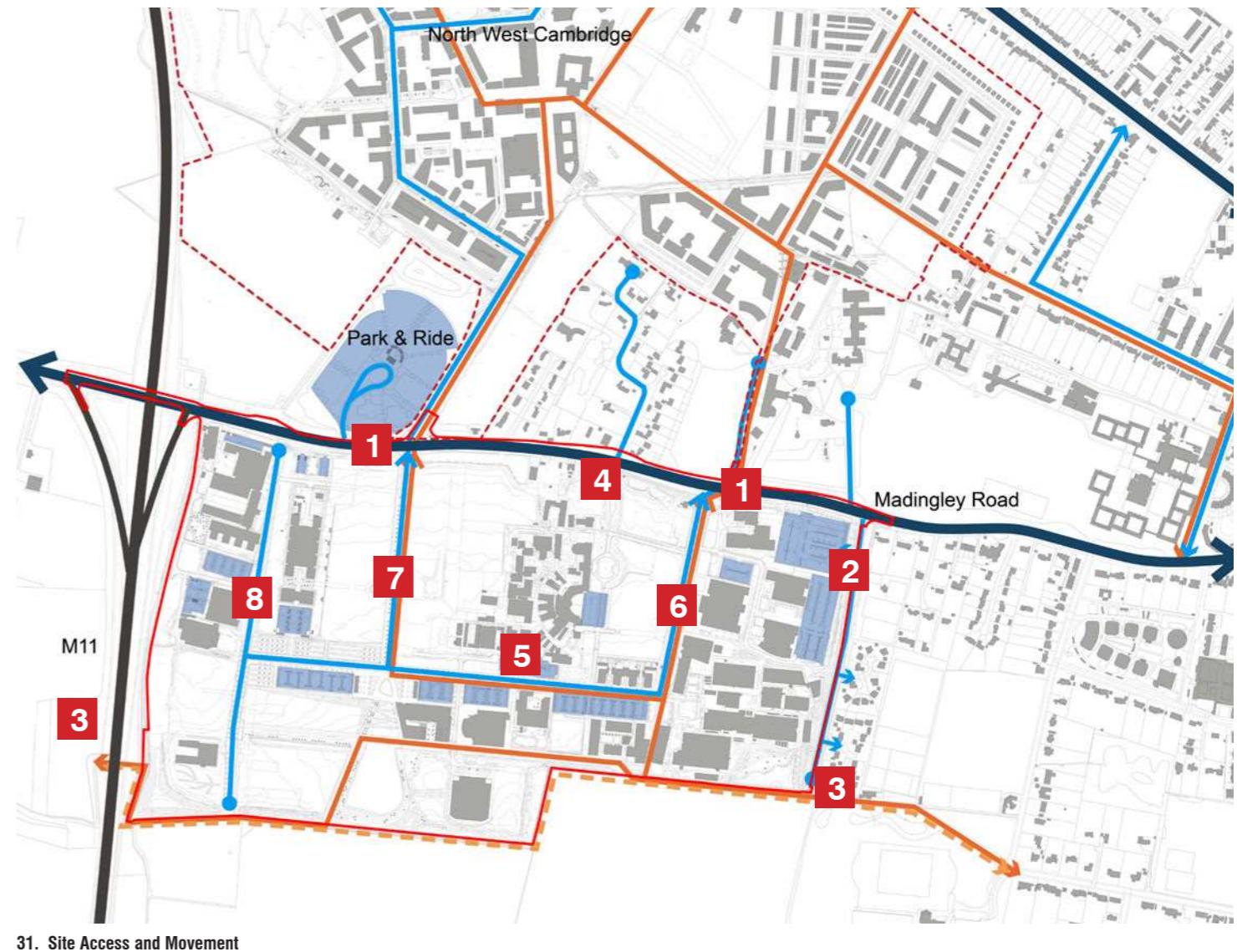
4 **3.4.22 The original entrance to the Department of Veterinary Medicine** (the 'Vet School') has been closed to vehicles, but the original road layout was retained. The grand maple tree and tree-lined street are assets that should be celebrated. There is an opportunity to reopen this entrance to create an additional access point along Madingley Road.

3.4.23 Internal circulation: three streets provide an internal access loop within the site, these comprise Charles Babbage Road (5), JJ Thomson Avenue (6) and High Cross (7). High Cross has recently been completed with landscaping and avenues of trees. The Western Access Road and Ada Lovelace Road (8) are located to the west of the site and provide access to Schlumberger and other buildings in the western area. At present the Western Access Road provides no vehicular access/egress to Madingley Road

3.4.24 Other service roads provide access to car parking and academic buildings/service areas of the Vet School and Cavendish.

3.4.25 Car Parking Large surface car parking areas occupy areas along the eastern boundary, areas to the south of Charles Babbage Road and areas along the western boundary. These areas minimise connections between buildings and have large impacts on enclosure and definition of public realm.

3.4.26 The entrance to the Schlumberger Research building is set back from the main street, therefore pedestrians and cyclists arrive through a car park.



32. JJ Thomson access



33. High Cross access



34. Coton Footpath



35. Surface level car parking



Existing public transport

3.4.27 West Cambridge is well-located, being adjacent to well-frequented existing bus routes connecting to a range of destinations through the City:

- the Universal service runs at a frequency of 15 minutes on weekdays from the Madingley Road Park and Ride through West Cambridge, connecting the University facilities around Newnham to Cambridge Rail Station, then on to Addenbrooke's Hospital. When Phase 1 of the NWCD is occupied, the service will start from the new Local Centre instead of the Park and Ride site, collecting P+R passengers from the NWCD Site;
- Citi4 runs every 20 minutes along Madingley Road from Cambourne, passing West Cambridge and continuing along to Chesterton Road, Victoria Road to the Emmanuel Street stop in the city centre; and
- the Madingley Road Park and Ride site, a 10 minute walk from the Hauser Forum, is served every 10 minutes from the City Centre.

3.4.28 Whilst these services are regular there is a perception that the site is poorly serviced by public transport. This may be due to a number of factors such as:

- only Universal service bus stops are located within the site and these are not located close to the Development focus points at the West and East Forums;
- buses serving West Cambridge are frequently delayed exiting the site as no bus priority is provided on the Site Access Junctions with Madingley Road; and
- access to other services requires passengers having to walk to, and cross, Madingley Road.

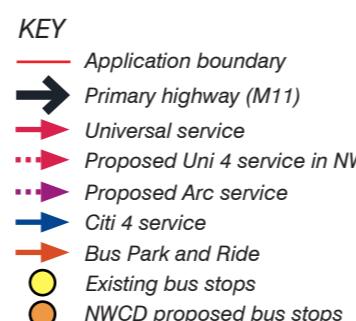
37. Madingley Road Park and Ride



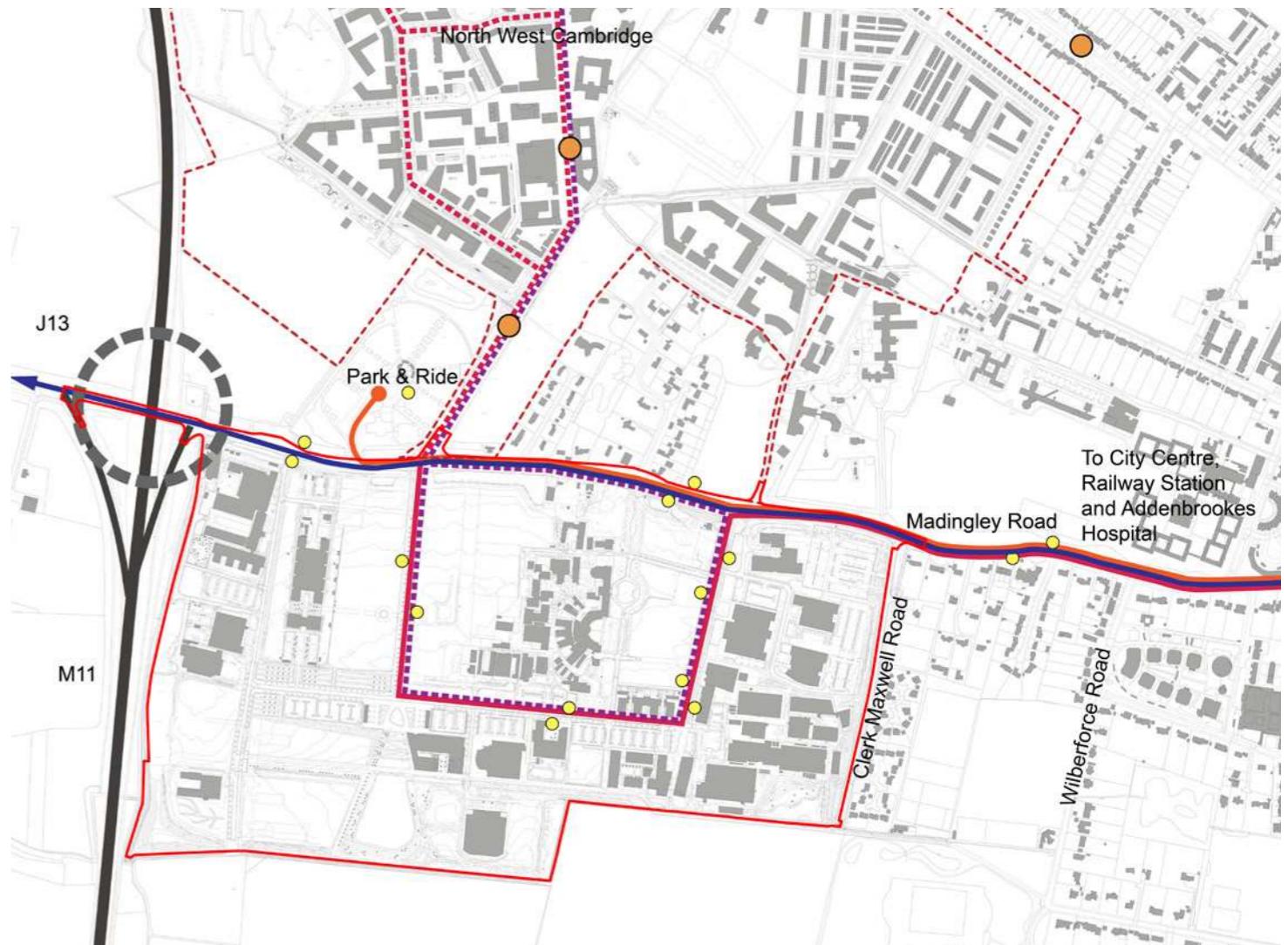
3.4.29 NWCD will provide improved bus connectivity that will also improve access to the West Cambridge site. This includes a more frequent Universal service linking to the other University facilities, and (later in the NWCD delivery) an Arc bus service linking from West Cambridge around the periphery of Cambridge towards Chesterton Rail Station/Milton Park and Ride.

3.4.30 In addition, there are two additional bus services being considered as part of City Deal proposals which could enhance bus accessibility to West Cambridge. They include:

- a radial route extension towards Cambourne and the west; and
- an orbital route, extending and intensifying the initial NWCD orbital proposals (Arc service).



38. Madingley Road Park and cycle



36. Existing Public Transport

39. Bus stops within the Site



40. Bus services



Key views

Key views to site:

3.4.31 The Grade II* Listed Schlumberger Research building forms a highly distinctive, key landmark for the site which is visible from the M11, parts of the NWCD site and occasionally from within the site and from Madingley Road. However this iconic building is not visible from areas east of the present Vet School buildings.

3.4.32 Views into the Site along the northern and western boundaries are generally limited due to thick or dense bands of woodland buffer except where the Site access roads join the A1303 Madingley Road.

3.4.33 Views into the Site from the east along Clerk Maxwell Road are also extremely limited due to a dense band of screening vegetation. However, buildings within the site are visible from further east, from within the sports fields.

3.4.34 Views into the site from Madingley Road are also limited. Views are provided at site access points at High Cross and JJ Thomson Avenue and areas to the west. In the east an existing woodland buffer limits views to the interior of the site.

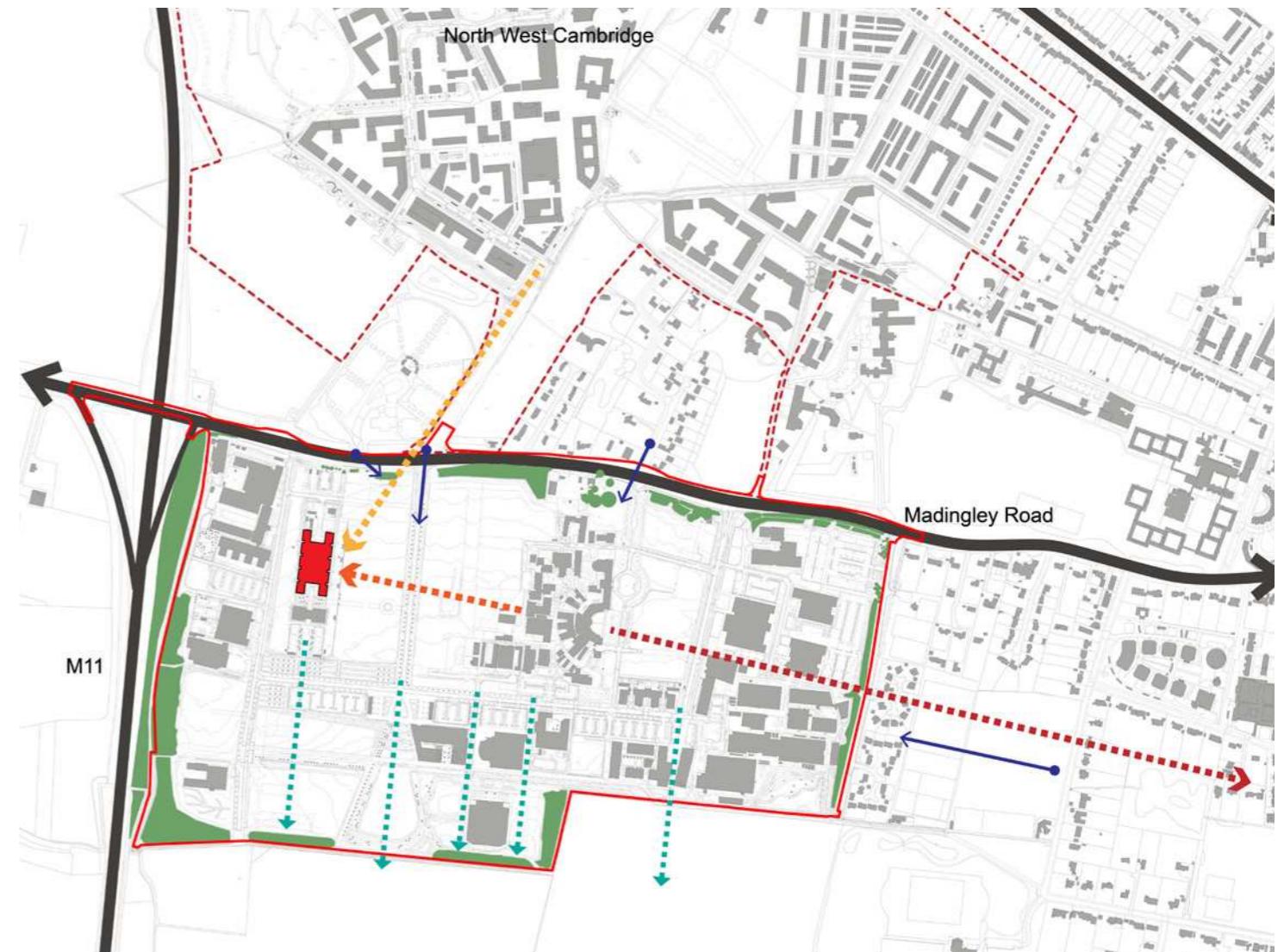
3.4.35 Buildings within the centre of the site are generally not visible from and do not address Madingley Road.

3.4.36 Approaching from the city centre along Coton Footpath, Hauser Forum is the first highly visible building with the Cavendish Laboratory being largely hidden by woodland planting with only its roofline visible.

Key Views from site:

3.4.37 Higher ground at East and West Forums, provide dramatic views towards the open, agricultural countryside to the south. Other streets between Charles Babbage Road and the south of the site also provide glimpses of this aspect.

3.4.38 Views from upper floors of the Maxwell Centre towards the city centre reveal how clearly city landmarks such as King's College Chapel, St John's College Chapel and University Library can be seen from within the site. From ground level King's College Chapel is visible from the car park in front of the Veterinary School.



41. Key views from and into the site

42. Views from Madingley Road



43. Views to Schlumberger from within the site



44. Views from East Forum to southern countryside



45. Views from West Forum to southern countryside



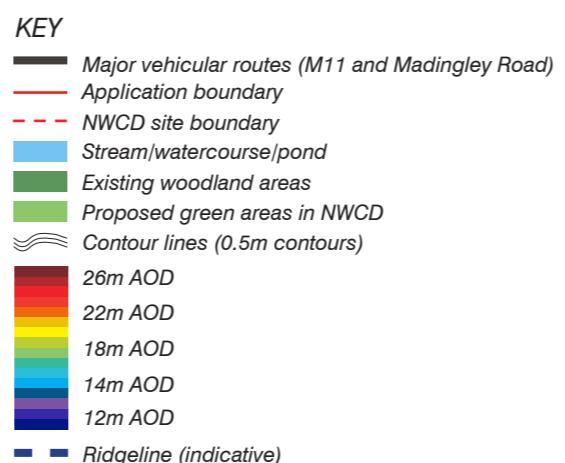
Topography

3.4.39 Within the Site area the topography is generally flat. However there is broadly, through the middle to upper third of the site, an east to west running ridgeline that falls in elevation from west to east from about 19.70 to 14.70m. This natural water shed directs surface water to the north of the ridgeline to Madingley Road and south of the ridge line to the ponds & drainage corridor.

3.4.40 Along the southern boundary the site falls from approximately 17.50m to 12.70m west to east forming a ridge and high plain overlooking the open countryside to the south.

3.4.41 The height difference between Charles Babbage Road and Coton Footpath is approximately 3 to 4m, equivalent to one storey of commercial development.

3.4.42 Charles Babbage Road, the West Forum and the East Forum occupy this higher level which provides them with views over the open countryside to the south. At West Forum, the existing landscape design incorporates ramps and stairs to manage the level difference.



46. Topography of the site

47. The East Paddocks



48. Level difference between Charles Babbage Road and Coton Footpath



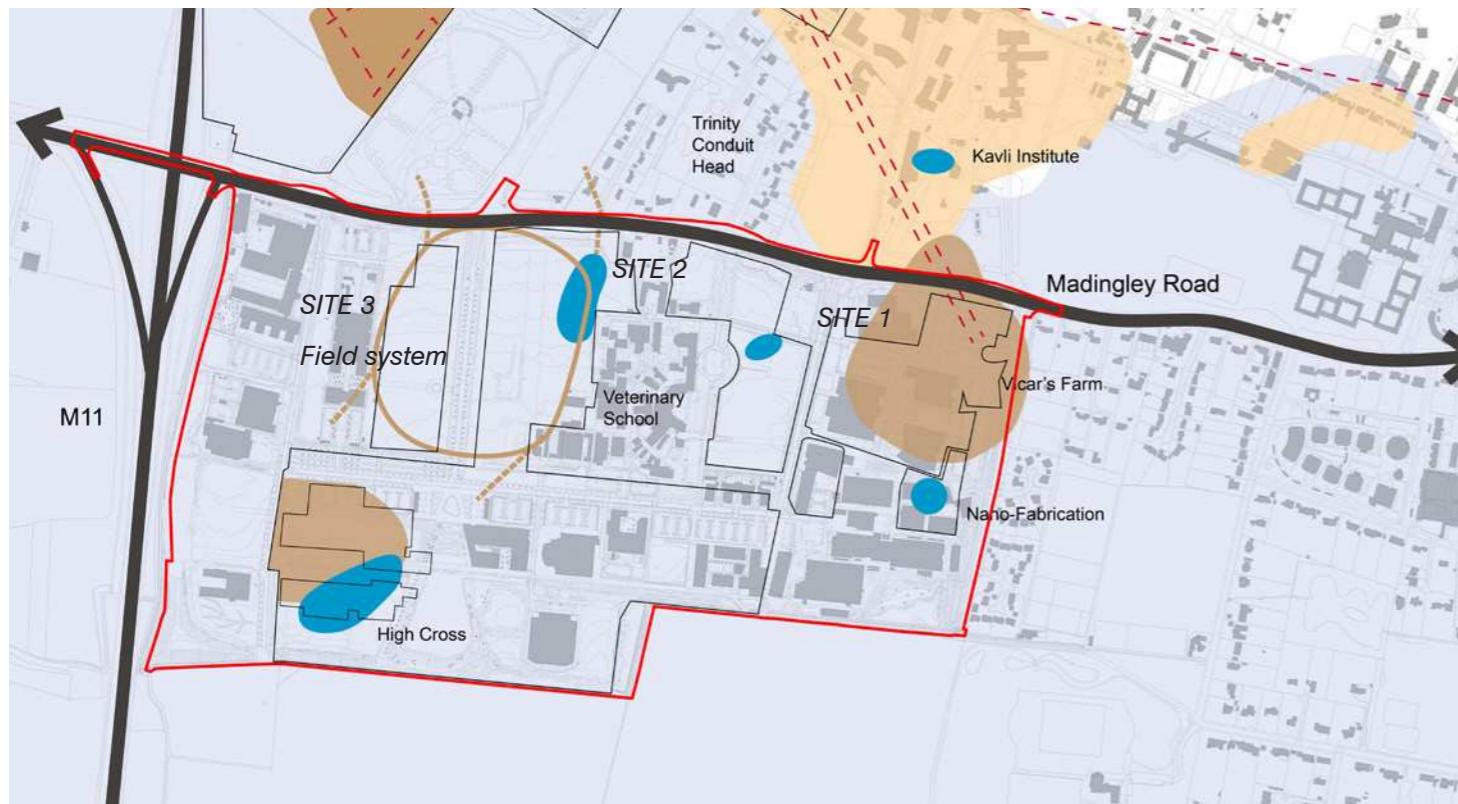
49. Terraces at the West lake



50. Level difference at the south-east corner



Archaeology



51. Archaeology

3.4.43 The site's archaeological potential has been fully appraised by a desktop study. Since then - at various times approximately half of the Proposed Development area has been subject to evaluation fieldwork. While these investigations have been of varying intensity, generally it has been of a low sampling density. Of those portions that have been formally evaluated, all of the known sites therein have now been excavated and there have been two major excavations.

3.4.44 Excavations at Vicars Farm (to the north east of the site), revealed evidence of quite significant activity from the Mesolithic to Romano-British periods, with a substantial Romano-British settlement covering the entire excavation area. In addition, the latest phase of excavations on the site has revealed an Early to Middle Iron Age settlement (site 2), overlaid with an extensive Romano-British field system and possible trackway (site 3), and an additional Iron Age site of lesser significance has also been identified (site 1).

KEY

- Major vehicular routes (M11 and Madingley Road)
- Application boundary
- - - Roman road/routeway
- Solid geology and drift deposits
- 3rd-4th terrace/head gravels
- Boulder clay
- Archaeological sites
- Roman
- Iron Age

3.4.45 The findings suggests a relatively intense use of the site, with site 2 suggesting a more sustained usage.

3.4.46 Site 2 will require full open-area excavation should development proceed there.

Noise & Vibration

3.4.47 The dominant noise sources across the site are the M11 motorway to the west and the A1303 Madingley Road to the north. The noise levels across the site vary considerably due to the large distances between these road traffic sources and the eastern and southern boundaries as well as the distances between developed areas of the Site.

3.4.48 In addition, plant noise from some existing buildings on Site contribute to the sound climate in developed areas of the Site.

3.4.49 Vibration sources include road traffic on the M11 motorway and A1303 Madingley Road as well as traffic on roads within the Site boundary where traffic calming measures such as speed bumps have been installed.

3.4.50 Potential off-site noise sensitive receptors include local residents to the east of Clerk Maxwell Road and to the north of Madingley Road. Potential noise sensitive receivers on site include tenants of the North and South Residences and users of academic facilities.

Utilities



52. Existing utilities

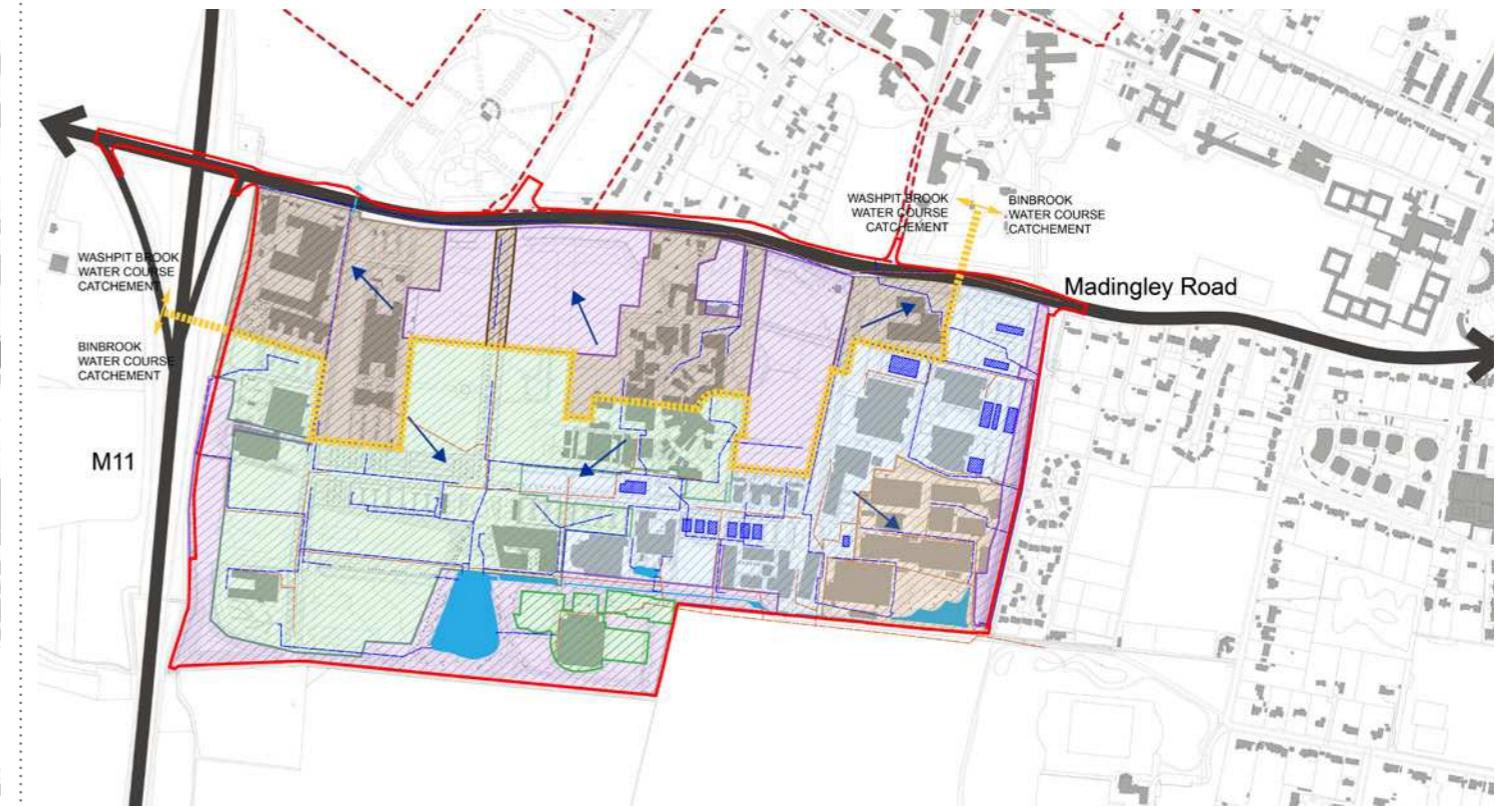
3.4.51 Water, sewer, gas, electricity and telecommunications services are all presently buried beneath the Site servicing the existing buildings.

3.4.52 The Proposed Development will make use of the existing services and any spare capacity, but will supplement supply by upgrading off-site infrastructure where necessary.

KEY

- Major vehicular routes (M11 and Madingley Road)
- Underground Electricity cables
- Gas supply
- Fibre optic cables/BT cables/communications cables
- - - NWCD site boundary

Site drainage and water



53. Existing site drainage and water

3.4.53 The existing development is well serviced with primary drainage infrastructure located within all access roads. There is a natural water shed within the Site with approximately 23% of the site draining northwards to Wash Pit Brook, and 77%, draining to Coton Brook, located to the southeast. Flow controls and attenuation features are present to restrict site discharges to Greenfield runoff rates.

3.4.54 The main surface water body within the Site is the engineered lake south of West Forum which provides attenuation of existing surface water flows from the existing built development. Flows from the lake discharge at Greenfield rates via a water course known as the Canal, into Coton Brook, located south east of the Site.

3.4.55 The pond located in the south east corner of the Site provides attenuation for the eastern area of the Site and discharges at a restricted rate into the Coton Brook.

3.4.56 Ditches located around the Site, notably adjacent to the northern boundary, perform a limited drainage function as many are heavily vegetated.

3.4.57 Underground geo-cellular surface water storage tanks are located in car parks located to the east and south of Charles Babbage Road.

KEY

- Application boundary
- - - NWCD site boundary
- Major vehicular routes (M11 and Madingley Road)
- Existing storage tank
- - - Existing drainage outfall
- - - Existing SW pipes
- - - Existing FW pipes
- Existing flow direction
- - - Existing watershed line
- Catchment area draining directly to South-West lake
- Catchment area undeveloped
- Catchment area draining to public sewer on Madingley Road
- Catchment area draining to Paynes Pond
- Catchment area utilising on plot storage

3.5. Site description

On site landscape and ecology

3.5.1 Cambridge has a distinct character and landscape setting. The diversity of historic buildings and conservation areas, the colleges, the river, the commons, open spaces, natural features and habitats all contribute to the distinctiveness and uniqueness of the City's landscape.

3.5.2 The rural hinterland of Cambridgeshire is particularly close to the west of the City. Defined by large arable field parcels with an open aspect but with limited visual connections to the city. The remnants of the agricultural landscape can be seen throughout the City where they help to define the network of open spaces and routes that shape the urban grain.

3.5.3 The association between public open space, private intimate space and the density and scale of the built form are particularly marked in Cambridge. The connection between these spaces is typically reinforced with mature avenues, lines of trees or formal boundaries all forming a clear distinction between private and public functions.

3.5.4 The site at West Cambridge offers and contains many of the features seen throughout the city and rural fringe:

- Hedgerows with mature trees and drainage ditches;
- Legible routes with avenues of trees;
- Cycle and pedestrian routes;
- Mature woodland copses;
- Woodland boundaries and shelter belts;
- Areas of open water; and
- A range of naturalised shrub and grassland habitats.

3.5.5 There is potential to improve the biodiversity of the Site through ecologically considerate landscape design and specification

3.5.6 By enhancing and augmenting the underlying natural features in the West Cambridge site a narrative can be developed that is relevant to the surrounding landscape, Cambridge City Centre and the functions of the University.



55. West Lake amenity space



56. Tree lined Streets (JJ Thomson Avenue)



57. Veterinary School Paddocks



58. Canals and Ponds



59. The Canal



The canal is part of the site wide drainage system and is located between the Lake and Southern Residences. It is not linked to the pond in front of Broers building or the pond in the south east corner. Currently the water flow in the canal and the pond is not optimal and there are opportunities to maximise the amount of water storage and introduce additional flow controls to improve the flows and health of the canal.

60. The West Forum and West Lake



The West Lake is envisaged as a secure and relaxing place, offering views over extensive Green Belt countryside. The West Forum, however, has the potential to feel barren and under-used unless closer and more active building frontages are encouraged and planting enhanced.

The lake has average suitability for great crested newts and the area immediately surrounding the ponds provide some good terrestrial habitat. This presents the possibility of augmenting & enhancing the ecology of the Site.

61. The East Forum



The East Forum is well defined between Hauser Forum and Broers building and West cafe is well located to add vibrancy to it. However, the space towards JJ Thomson Avenue is fronted only by at grade car parks and lacks definition. There are opportunities for additional built form and amenity in this area.

The view of the countryside captured between the two buildings is captivating and is one of the defining places of the 1997 masterplan and the site.

62. East Pond adjacent to Cavendish II Laboratory



The pond and south-facing space adjacent to the Cavendish Laboratory is of high quality, but does not address the Coton footpath. Opportunities to create views to and from the site are a missed opportunity to enable the wider site to be connected with its context.

This pond provides attenuation for the eastern area of the Site and which also discharges at a restricted rate into the Coton Brook. This pond and the surrounding area has good suitability to enhance the ecology of the Site.

63. The Veterinary School Paddocks



The Paddocks take up a significant portion of the central part of the site, contributing to a rural feel and setting for the buildings. Ecologically they are a species poor, semi-improved grassland environment.

The restrictions of their use as grazing fields (for animals used for teaching at the Veterinary School) means that they are not, nor can they be, usable/accessible open space. Thus, they do not provide usable open space, but do provide visual amenity.

64. Specimen Trees



There are individual and groups of mature trees located within the Site forming distinct lines of trees or prominent standard specimens in formal and informal areas. The mature trees of note are the English Oaks, Silver Maples, Limes, Horse Chestnut and Willow specimens.

Existing street trees that form distinct avenues or formal lines are predominantly young specimens planted within the past 10 years, with species such as Common Ash, Lime and English Oak. The limited age of these trees reduces their arboricultural value at present, however over time, this will increase with their maturity.

65. Woodland Edge



The site is framed by a woodland edge of mature tall trees and thick shrubs in places that provide full or partial screening that restrict views to and from the site. This is a valuable feature, characteristic of many areas in Cambridge, which provides amenity and a means of spatial definition when buildings are sparse or set back.

To the east of M11, the Verge Country Wildlife Site is located along the western boundary of the Site and supports scrub with four or more woody species, plus a hedgerow more than 100m long and 2m wide at widest point with four or more woody species.

66. The Southern Edge



The landscape and ecology to the south the Site are dominated by arable fields with small woodland blocks and hedgerows. This edge is more open and allows clear views from the site, though some screening vegetation is still present along the southern boundary.

Existing buildings and major occupiers

3.5.7 The existing buildings and occupiers within the West Cambridge site include:

- The largest occupiers on site are the Department of Veterinary Medicine (A) and The Cavendish Laboratory (B);
- Department of Engineering is present on the site in 5 separate buildings: Schofield Centre (H), Institute of Manufacturing (R), CAPE Building (K), Nanotechnology Centre (L) and the Whittle Laboratory (G);
- Several academic departments occupy stand alone buildings (T), (S), (I);
- Commercial research partners including the Schlumberger Research building (C), (E) and research institutes (D) are located in the Western part of the site;
- The Hauser Forum and Broers Building (P) form a nucleus of entrepreneurial activity, with flexible spaces and support for start-ups (Cambridge Enterprise and ideaSpace) and smaller suites occupied by commercial research tenants;
- Sports Centre (U) is a destination of city-wide importance;
- Roger Needham building (J) is currently occupied by University Information Services;
- Residential blocks (O), (Q) together have 204 units, and Northern block (O) also includes a nursery with 100 child spaces;
- University wide support facilities such as Data Centre (V) and University Stores (F) are located at the Western end of the site.



67. West Cambridge - existing buildings on site

A	Veterinary School
B	Cavendish Laboratory
C	Schlumberger Research
D	British Antarctic Survey
E	Aveva
F	University Stores
G	Whittle Laboratory
H	Schofield Centre
I	Computer Science (William Gates)
J	Roger Needham (ex Microsoft)
K	Electrical Engineering
L	Nanotechnology Centre
M	MRI
N	Physics of Medicine & Maxwell Centre
O	North Residences
P	Hauser Forum & Broers Building
Q	South Residences
R	Institute for Manufacturing
S	Chemical Engineering and Biotechnology
T	Material Science and Metallurgy
U	Sports Centre Phase 1
V	Data Centre

3.5.8 The site at present has a relatively large number of catering facilities. The diagram above the right shows their distribution across the site. Amongst them, there are facilities within departments, (both those run by departments and out sourced to others), areas run by the University centrally and areas run by commercial and institute occupiers. In addition the site is served by visiting vans.



68. Shared facilities: catering

3.5.9 Currently, the Cavendish canteen and the West Cafe at the Hauser Forum provide hot food on site and are open to all on the campus. While the West Cafe is relatively visible and animates the East Forum, the Cavendish canteen and other catering facilities on site are relatively hidden and inward looking, and thus fail to fully realise opportunities to contribute activity to the public realm.

69. Schlumberger Research Building

The Schlumberger Research Building, designed by Hopkins Architects in 1992, forms a key landmark building for the West Cambridge Site. This building is Grade II* Listed.

Schlumberger intend to remain on site and continue their strong association with West Cambridge. They have ambitions to extend in the future and are considering a stronger interaction with the surrounding site.

70. School of Veterinary Medicine

The Veterinary School was built in the 1950s with many subsequent additions and thus has disparate buildings and lacks coherence. It occupies the centre of the site and is surrounded by paddocks for animal grazing which are part of the teaching component of the department.

In accordance with the need to cluster physical science and technology disciplines on the West Cambridge site, it is anticipated that the Veterinary School will vacate its present buildings within the next 10-15 years.

71. Cavendish II Laboratory

The Cavendish II Laboratory was built in the 1970's and forms a complex of buildings that is strongly associated with West Cambridge.

The Cavendish Laboratory will remain within the West Cambridge site and intends to re-locate and update their facilities on another part of the site. Their vacated site to the south east of the site provides a key opportunity to provide a new gateway to the site from the city and the Coton Footpath.

72. British Antarctic Survey (BAS) and Aveva

Located to the north-west of the site along the Western Access Road there are a series of low density buildings accommodating key commercial and research institute partners.

BAS occupies one and two storey buildings and have recently completed a new entrance and a social/meeting space annex.

Aveva (pictured above) is in a two storey building with a courtyard.

73. Hauser Forum and Broers Building

The Hauser Forum and Broers Buildings are two newer buildings forming a gateway and public space to east area of the site and providing views and outlook to the southern open countryside. The Hauser Forum accommodates the West Cafe, a key social space.

The current occupiers include Cambridge Enterprise and ideaSpace (two University affiliated organisations promoting entrepreneurship and supporting small businesses) and commercial research occupiers.

74. University Sports Centre (Phase 1)

The University Sports Centre is located to the southern edge of the Site, adjacent to the West Lake. It is a key destination for the site and wider city. It draws visitors during the evening and at weekends.

At present only Phase 1 of the building is complete and provides a sports hall and gym facilities. Later phases of development, not yet been scheduled for construction, will provide further indoor sports facilities.

75. Northern Residences - Housing

Two residential blocks in the south eastern area of the Site provide just over 200 units of University affiliated rental accommodation and bring limited activity to the site.

The north block located along Charles Babbage Road forms good frontage and enclosure to the street which makes it feel more intimate and urban. This is a good precedent in terms of form, height and appearance of development that adds to a sense of character. The ground floor accommodates a nursery.

76. Southern Residences - Housing

The Southern residential block encloses a courtyard with Hauser Forum. The frontage to the Coton footpath includes commercial units at ground floor, one of which currently accommodates community space. The remaining units are empty.

Residential units in this block are predominantly one bedroom units.

Existing buildings: massing and setting

77. Building heights



Newer development has a predominant consistent building height of 3-4 storeys.

The development that pre-dates the 1997 masterplan is of relatively lower height and density, which results in an inconsistent and detached feel on the site.

78. Set backs



The current setback of the Whittle Laboratory (pictured) from JJ Thomson Avenue detracts from the arrival to West Cambridge. As a result, the buildings are more distant and the environment disparate and incoherent.

Also, the building's servicing area faces JJ Thomson Avenue. There is an opportunity to add high quality building frontage to enliven the streetscape.

79. Surface car parking



In some instances, buildings are set back behind car parking. This reduces connections and interactions between occupiers, takes activity away from the public realm and leaves key spaces without a sense of definition and enclosure.

The entrance to the Schlumberger Research Building is set back from the main street, therefore pedestrians and cyclists arrive through a car park.

80. Plant height



While most of the buildings have relatively small rooftop plants set back from edge of the building, some buildings have plant requirements occupying significant portions of roofs. The Materials Science building has a 4m high plant set back from the edge and screened; Chemical Engineering building (pictured) has a 5m high plant as an extra storey over one portion of the building, also screened. This kind of solution adds to building mass and should be carefully considered.

81. Consistent building line



IfM building is set back from Coton Footpath at present - however there is potential to extend this building to address the space. IfM is significantly lower than its new neighbour, the Chemical Engineering building (CEB), which results in an unusual contrast and an inconsistent building line.

CEB has strong massing and re-establishes the building line and height set by Hauser Forum on the East side. Its southern frontage is not active apart from cycle access and parking on the south west corner, which will provide a lively point.

82. Active frontage



Materials Science building faces the Southern frontage with controlled research spaces which don't interact with the surroundings. Similarly to CEB, it has a cycle access and parking located on this side, and also a secondary entrance forecourt which provides a more intimate open space but is currently not well utilised.

The building has a strong composition which succeeds to spatially define the East edge of the West Forum but is contrasted with its relative isolation and volumetric treatment of materials.

83. Arrival



The back-of-house space of Cavendish Laboratory and Broers building (pictured) are visible from the East Forum approach to Cavendish Laboratory. This creates a confused and not well presented arrival experience for Cavendish Laboratory.

84. Ecology



There is opportunity for improving the ecological potential of the Site through considerate landscape design and specification.

By enhancing and augmenting the underlying natural features in the West Cambridge site a narrative can be developed that is relevant to the ecology of the Site and the surrounding landscape.

Existing buildings: architectural character

3.5.10 The buildings on site have a range of architectural characters and some of them are excellent examples of academic and research buildings.

3.5.11 The most distinguished building on site is the Grade II* Listed Schlumberger Research Building. Its ground-breaking roof structure and distinctive roofline which refers back to the intricacies of the skyline of the city, has become a key landmark for the West Cambridge site.

3.5.12 The building is visible from outside the site with views from the M11, from parts of Madingley Road and from long distance views from North West Cambridge Development and from the south.

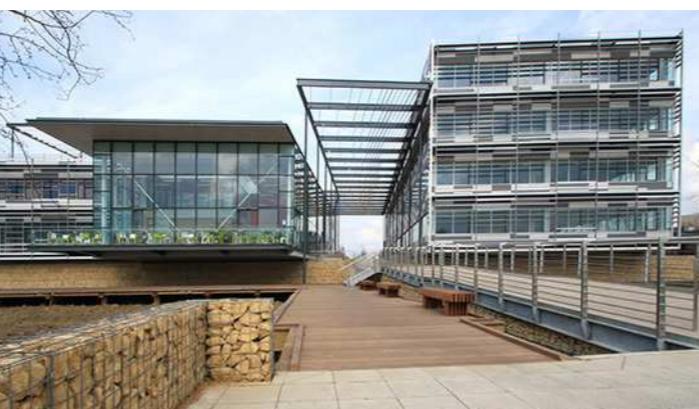
An eclectic set

3.5.13 There are a number of existing buildings on the site at present and, although together they form a relatively eclectic picture, there are a few common threads (many of which have been previously established by Schlumberger Research Building):

- An efficiency of means, examples of clear spatial arrangement with successful connective social spaces: Institute for Manufacturing Building and Computer Laboratory;
- Emphasised roof structures (an exploration of and celebration of structure and skyline): Physics in Medicine, Computer Laboratory, Roger Needham Building and Schlumberger Research Building;
- Tectonics: exposed structures;
- Volumetric: Materials Science and Metallurgy, Institute for Manufacturing Building, North Residences;
- Innovative and/or natural materials: Materials Science and Metallurgy, Institute for Manufacturing Building, North Residences, Maxwell Centre;
- Environmental response to climate - Hauser Forum and Broers Building, Computer Laboratory and Maxwell Centre.



85. West Cambridge Landmark - the Schlumberger Building



Hauser Forum and Broers Building



Computer Laboratory



Roger Needham Building



Institute for Manufacturing



Chemical Engineering and Biotechnology



North Residences

3.6. Existing consented masterplan

Description of existing consent

3.6.1 The West Cambridge Masterplan was prepared for the University in 1997 by MacCormac Jamieson Pritchard. The masterplan was submitted with an outline planning application for the site, and was approved in 1999 (application ref. C/97/0961/OP). A review of the masterplan was carried out and subsequently approved in 2004.

3.6.2 Three major pre-existing developments were to be retained on the site and the masterplan had to be developed around them. These included the Veterinary School, Cavendish Laboratories and developments in the north west part of the site. In the description of the 1999 Masterplan, it was noted that the existing developments had a significant effect on the visual coherence and overall density of the site.

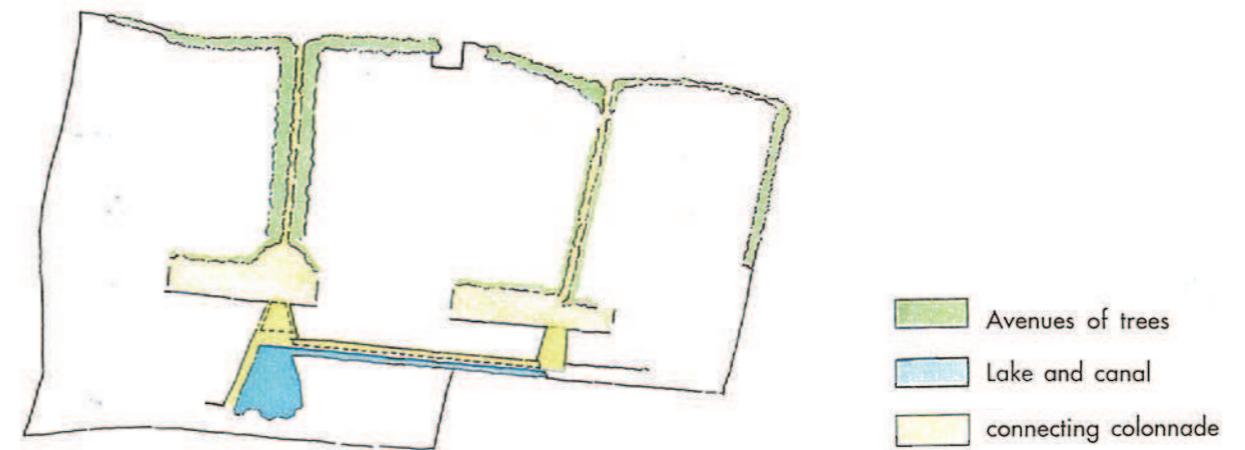
3.6.3 The masterplan responded to this lack of visual coherence and low density by concentrating new 3, 4 and in parts, 5 storey development in the 'academic core area' along the southern edge of the Site; and establishing a new site structure based on public realm elements, with squares, routes and landscape. The intention was for the public realm to knit the plot developments together and form a social focus for the West Cambridge research community.

3.6.4 The Coton Footpath was recognised as the main arrival route from the City Centre. Key spaces were the West and East Forums and the Colonnade to the southern edge of the site. These elements emphasised the southern approach from Coton Footpath and views from and across the open agricultural land.

3.6.5 The Masterplan and Planning Application contained a set of design guidelines, which sought to promote a particular visual and social character for the site as a whole. The guidelines included matters relating to land use, plot ratios, ground and water levels, building heights, massing, enclosure, permeability, focal points and key sites, but not detailed design codes for buildings. This approach was chosen deliberately to enable individual departments and design teams the necessary freedom and flexibility to design buildings to meet specific Department needs and identity, within an overall Masterplan framework.

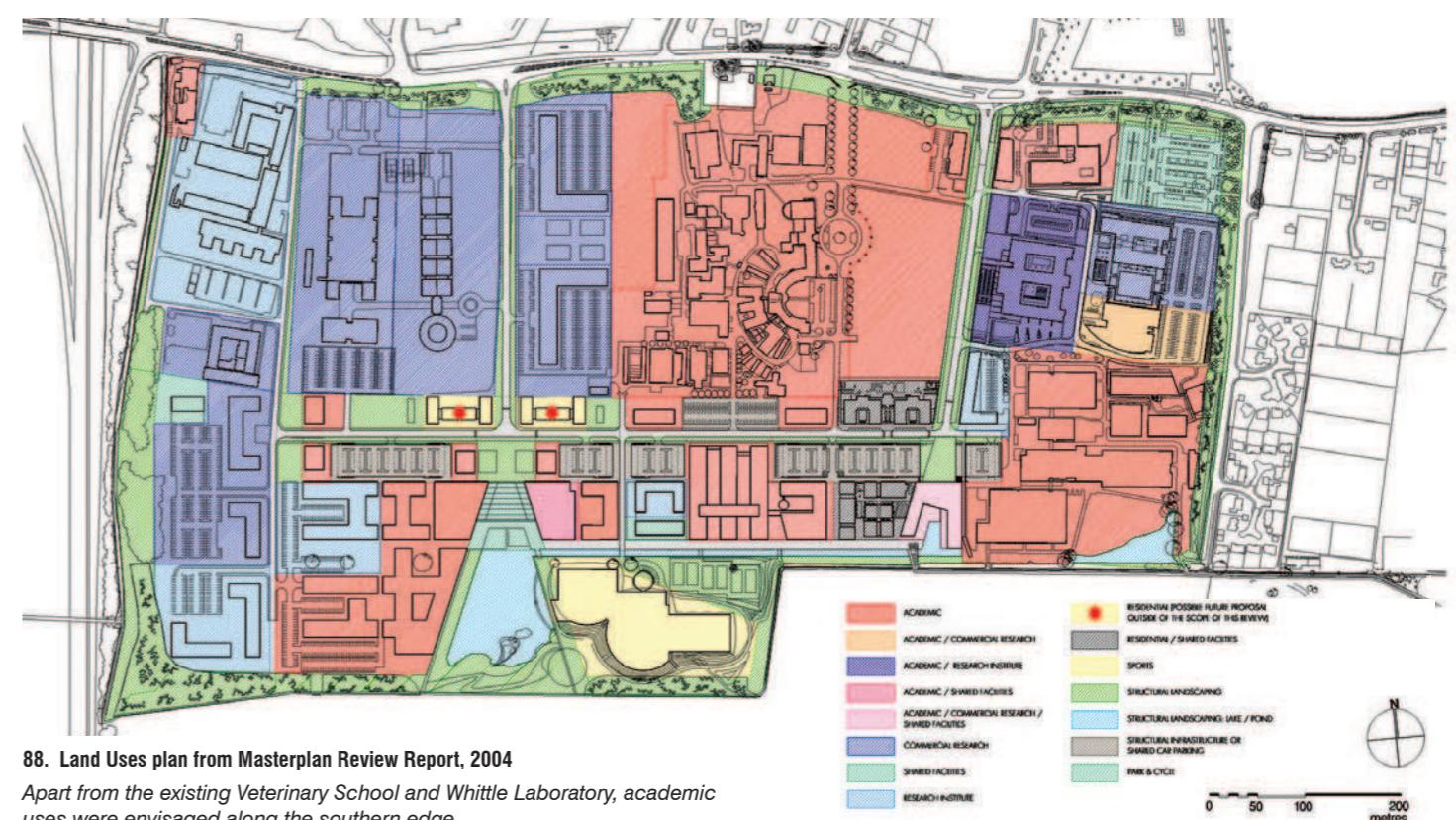
3.6.6 The original masterplan set out a number of overarching guidelines:

- Create an academic and research core to the south of the site and concentrate these uses to encourage formal and informal interaction. New public spaces and shared facilities encourage this interaction in the form of two Forums to the southeast and southwest of the site;
- The academic uses were to be located to the south of the site, relating strongly to the Coton Footpath which links the development back to the city centre and other academic clusters. The Coton Footpath was to form a key entrance to the site in the south;
- Social spaces and shared facilities were to be located around the East and West Forums as well as the southern Colonnade to ensure that these spaces were enlivened and active;
- Commercial research development was to be located close to transport infrastructure in the north of the site to reduce vehicle movement through and across the site;
- Mixed land uses through the site to encourage interaction between different site users;
- Design hard and soft landscaping to address the green belt boundary, with a transition formed by a south facing Colonnade and new Canalside public realm;
- Locate entrances to buildings on the southern Colonnade and Forums;
- Locate access to the site via two vehicular junctions on Madingley Road, the primary entrance at High Cross, and the secondary at JJ Thomson Avenue;
- Wherever possible, segregate pedestrians and cyclists from car traffic, and service vehicles from general vehicular access;
- Promote formation of routes linking the East and West Forums and routes running north/south through the academic core area; and
- Locate car parking in at-grade and landscaped car parks along Charles Babbage Road.



87. Key masterplan elements, original drawing, 1997

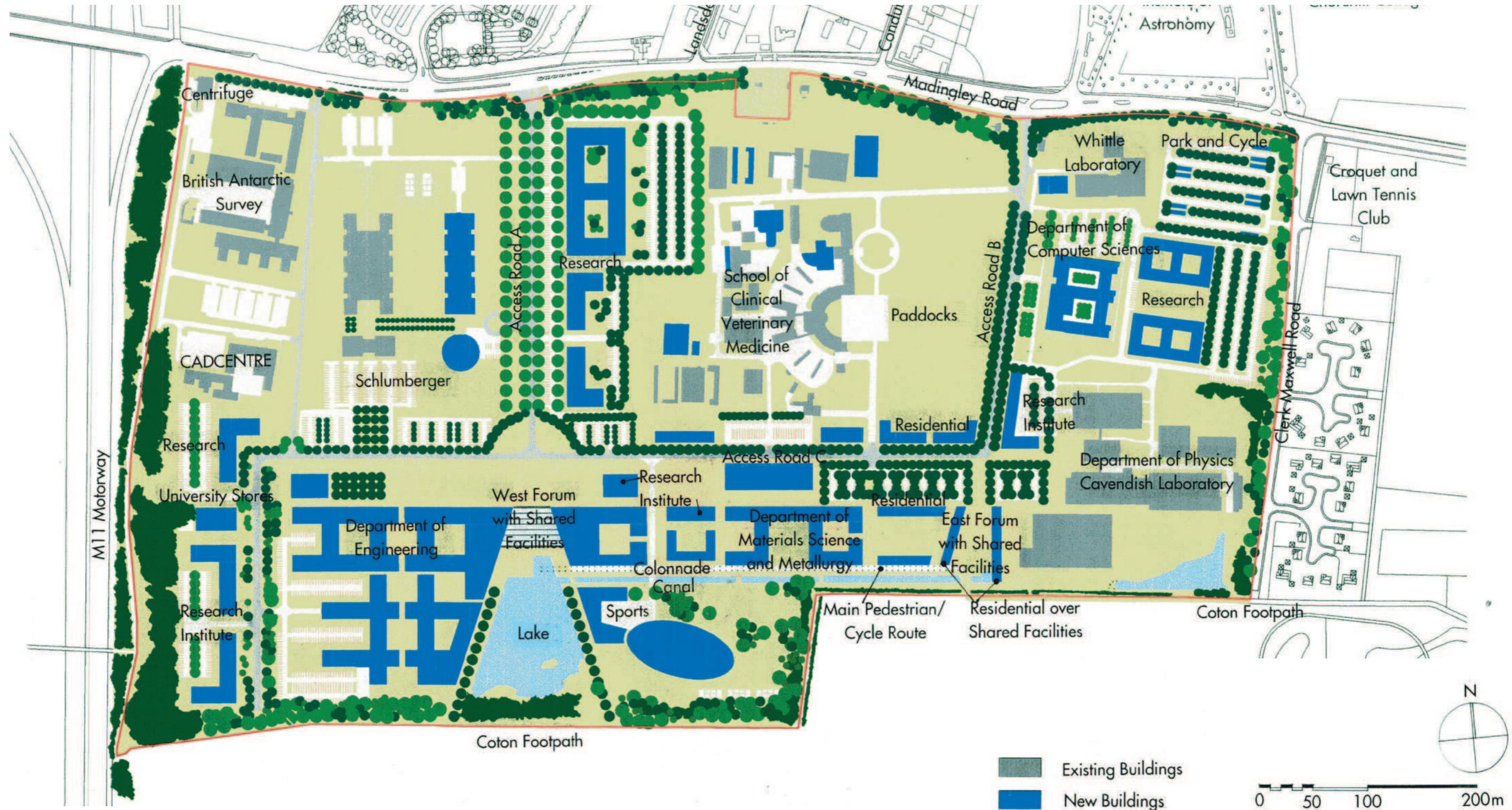
Key masterplan elements provide a spatial structure around the existing large occupiers: two Forums as focal points; two tree lined avenues which provide the main access to the site; a lake and canal along the southern edge to the existing Coton Footpath.



88. Land Use plan from Masterplan Review Report, 2004

Apart from the existing Veterinary School and Whittle Laboratory, academic uses were envisaged along the southern edge

The 1997 masterplan

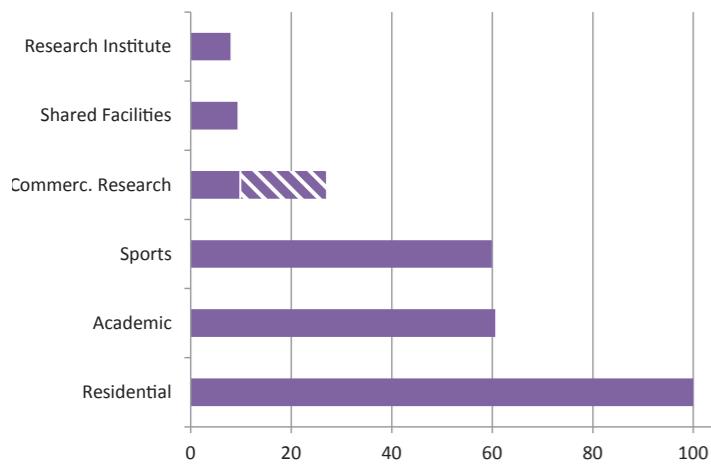


89. Masterplan drawing from Masterplan and Environmental Statement, 1997

Delivery of the 1997/2004 masterplan

3.6.7 The University continues to deliver successful academic and other University related buildings on the site within the framework of the 1999 Masterplan. Recently, the Hauser Forum and Broers building have, with the exceptional progress of Cambridge Enterprise, established the commercialisation of research and innovation related to the University as a key differentiator for the site.

3.6.8 While the delivery of the southern academic core area has been consistent and nearly 60% of the permitted academic development has been delivered, implementation overall has been slow, with infrastructure provision only realised in parallel with plot by plot development. Of the permitted commercial development, less than 12% has been achieved which is a significant lag compared to more than 60% of academic development (these uses were originally envisaged to be developed in parallel at West Cambridge).



90. Chart showing completed development at West Cambridge as a percentage of development permitted within the 1999 masterplan.

The chart shows the delivered areas, by use, as a portion of the overall capacity permitted within the 1999 masterplan. While the academic development reaches the set target, and the residential is entirely completed, there is a significant lag in the delivery of commercial research and shared facilities.

Existing developments on site

3.6.9 On site amenity has generally lagged other development and the planned relocation of the Department of Engineering as a major western anchor has not yet materialised. However, two of their five divisions are already established in the Eastern part of the site.

3.6.10 A significant part of the West Cambridge site had been developed before the 1999 Masterplan. This includes:

- Department of Veterinary Medicine, situated on a large central part of the site, comprising approximately 14ha of land. It has approximately 17,000m² gross area in an incrementally developed complex with the oldest buildings dating from 1950s. Most of the outdoor spaces are used as paddocks, occupying approximately 2ha in the east and 3.5ha in the west part of the site.
- Cavendish II Laboratory, which dominates the south-east corner of the site in a complex of inter-connected buildings and service yards dating from 1970s. The current configuration encloses a gross area of about 24,000m².
- The Whittle Laboratory in the north east part of the site, which is part of the Engineering Department.
- Commercial tenants and research institutes located in the north west part of the site, including: Schlumberger Research, Aveva, and British Antarctic Survey.

3.6.11 The developments built between 1999 and 2015 were completed following the 1997 masterplan and outline consent granted in 1999, and its revision in 2004. The majority of this development is located in the east part of the site. The development is predominantly academic, with additions to Cavendish II Laboratory, and new buildings for the Departments of Engineering and Computer Science.

3.6.12 Other more recent developments include commercial buildings (leased to Microsoft and now occupied by The University's Information Services), residential (204 units, in the south east of the site), a park and cycle facility, two academic buildings (for Material Science and Metallurgy and Chemical Engineering and Biotechnology), the first phase of University Sports Centre, the University Data Centre and the Maxwell Centre (a new research building related to the Cavendish II Laboratory).

3.6.13 The last phase of infrastructure works (High Cross and Charles Babbage Road) and open spaces (West Forum and the Lake) were completed in 2014.

3.6.14 The empty plots for the remaining consented developments are located in the west of the site and include a large plot to the west of the Lake, plus there are also a few smaller plots along Charles Babbage Road.

3.6.15 The consented masterplan allows for additional capacity for Schlumberger Research and development on the West Paddocks. In the 1999 outline consent, these buildings were proposed to be set back from High Cross, with at grade car parking in front of the buildings on east side of the street.

Buildings pre-dating 1997 masterplan:

- A Veterinary School
- B Cavendish Laboratory
- C Schlumberger Research
- D British Antarctic Survey
- E Aveva
- F University Stores
- G Whittle Laboratory
- H Schofield Centre

Buildings built following 1997 masterplan:

- I Computer Science (William Gates)
- J Roger Needham (ex Microsoft)
- K Electrical Engineering
- L Nanotechnology Centre
- M MRI
- N Physics of Medicine & Maxwell Centre
- O North Residences
- P Hauser Forum & Broers Building
- Q South Residences
- R Institute for Manufacturing
- S Chemical Engineering and Biotechnology
- T Material Science and Metallurgy
- U Sports Centre Phase 1
- V Data Centre

Buildings pre-dating 1997 masterplan
Buildings built following 1997 masterplan
Footprints from 1997 masterplan, unrealized

91. Delivery of the 1997 Masterplan



Existing urban form and development density

3.6.16 The current urban form at West Cambridge varies greatly across the site. The grain along the eastern and southern edges of the site as proposed in the 1999 Masterplan is more ordered than across the rest of the site. However, even this arrangement results in relatively low density as large areas of land are occupied by surface car parks. Thus, the layout promoted by the existing masterplan does not generate significant activity in the public realm because, although continuous, the building lines are predominantly set behind parking.

3.6.17 In order to establish benchmarks for initial density testing at West Cambridge, the design team looked at several well known University and business sites in Cambridge. The densities of the sites are measured by comparing the Gross External Floor Area (GEA) with the size of the plot in question.

3.6.18 The examples vary in density and provide good guidance on the relationship between density and identity or character of environment. However, it is important to recognise that there is no correct answer in terms of the 'right density', as it is only one of the factors at play, others being its design and social facilities.

3.6.19 Somewhat inevitably for a site with dispersed and low density pre-masterplan development, the densities across West Cambridge are not consistent. They range from 0 - 0.2 to 0.7, which results in a mix of urban and rural characters.

3.6.20 By comparison, density within Cambridge Science Park is uniformly low, which contributes towards its business park character, with an average plot ratio of 0.24.

3.6.21 The urban form of Cambridge Science Park is the result of a deliberate move to create a park-like setting across a dispersed space. This allows individual businesses to operate within the relative seclusion of generous landscaping, but is substantially dependant on car access. The result is that Science Park may not feel welcoming on its approach and along perimeter roads, but a coherent business park identity has been achieved.

3.6.22 Both the New Museums and Downing sites in central Cambridge, have been developed at very high density and open space is largely dominated by parking (both car and cycle) and servicing requirements.

3.6.23 Compact development at the New Museums site has resulted in a density of 2.95. Again, in the right context and with the right design, this density would be entirely appropriate in central London. The density of the Downing site is 1.98.

3.6.24 The Sidgwick site is located in western Cambridge. It is coherent and welcoming to pedestrians with a central courtyard and clear linkages between buildings. The integration of cycle and car parking remains a perennial challenge. It has a plot ratio of 1.33.

3.6.25 NWCD is designed with a density ratio of 1.0, which is consistent with the planned urban nature of the site, and which allows buildings to neither dominate the landscape nor become lost within it.

93. Cambridge Science Park - aerial view



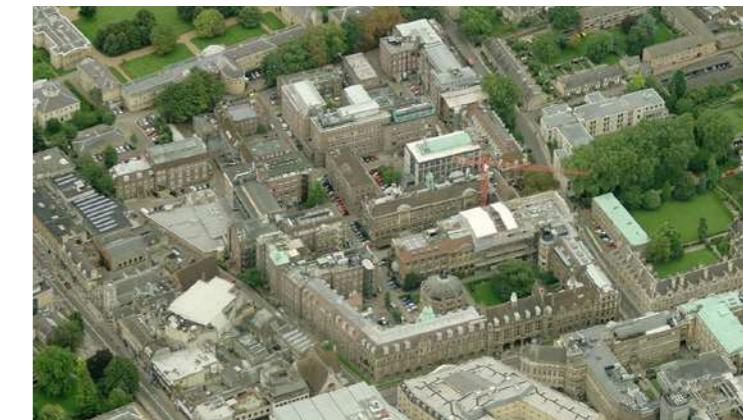
94. Sidgwick Site, Cambridge - aerial view



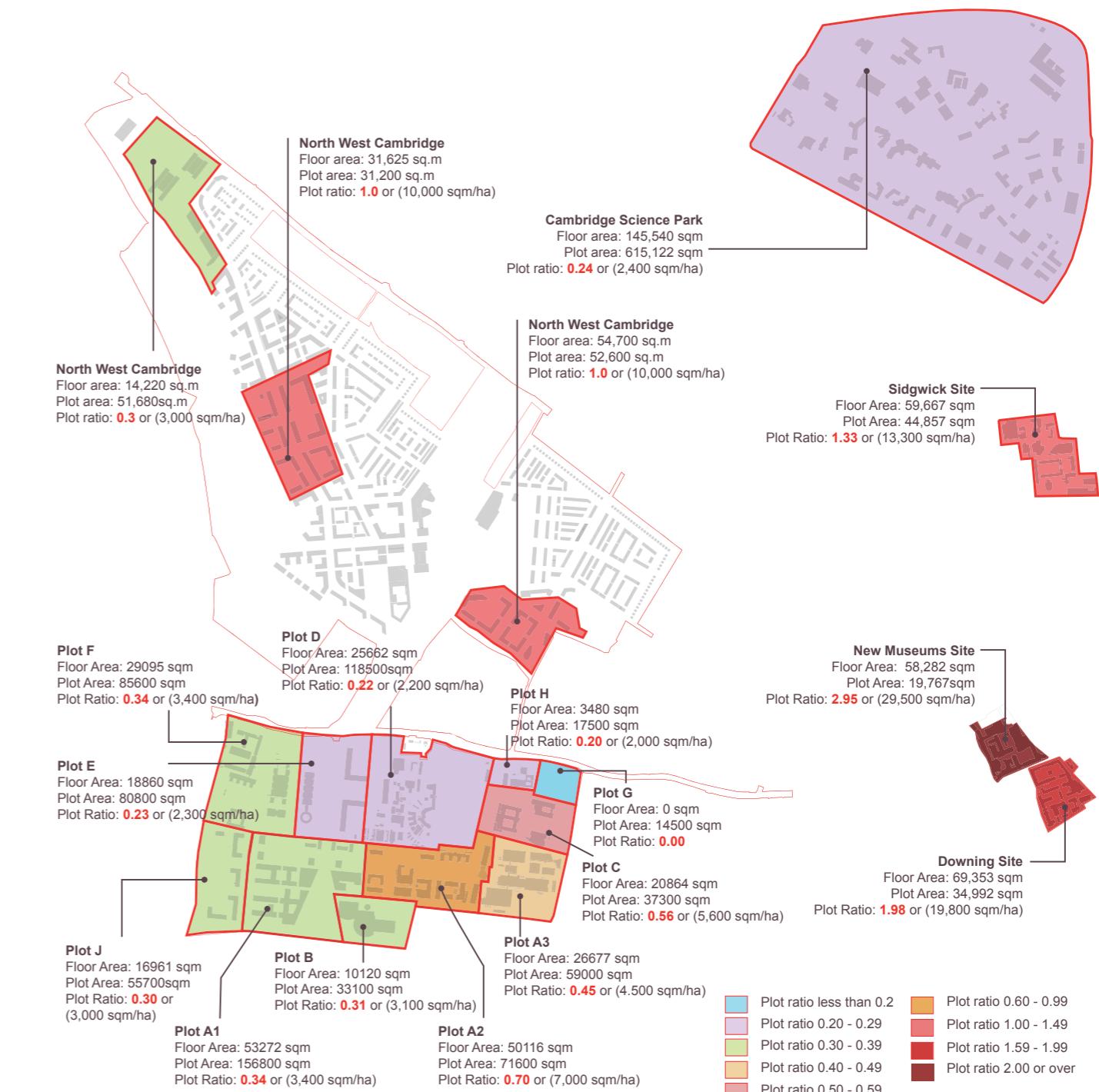
95. New Museums Site, Cambridge - aerial view



96. Downing Site, Cambridge - aerial view



92. Comparative Analysis of Densities



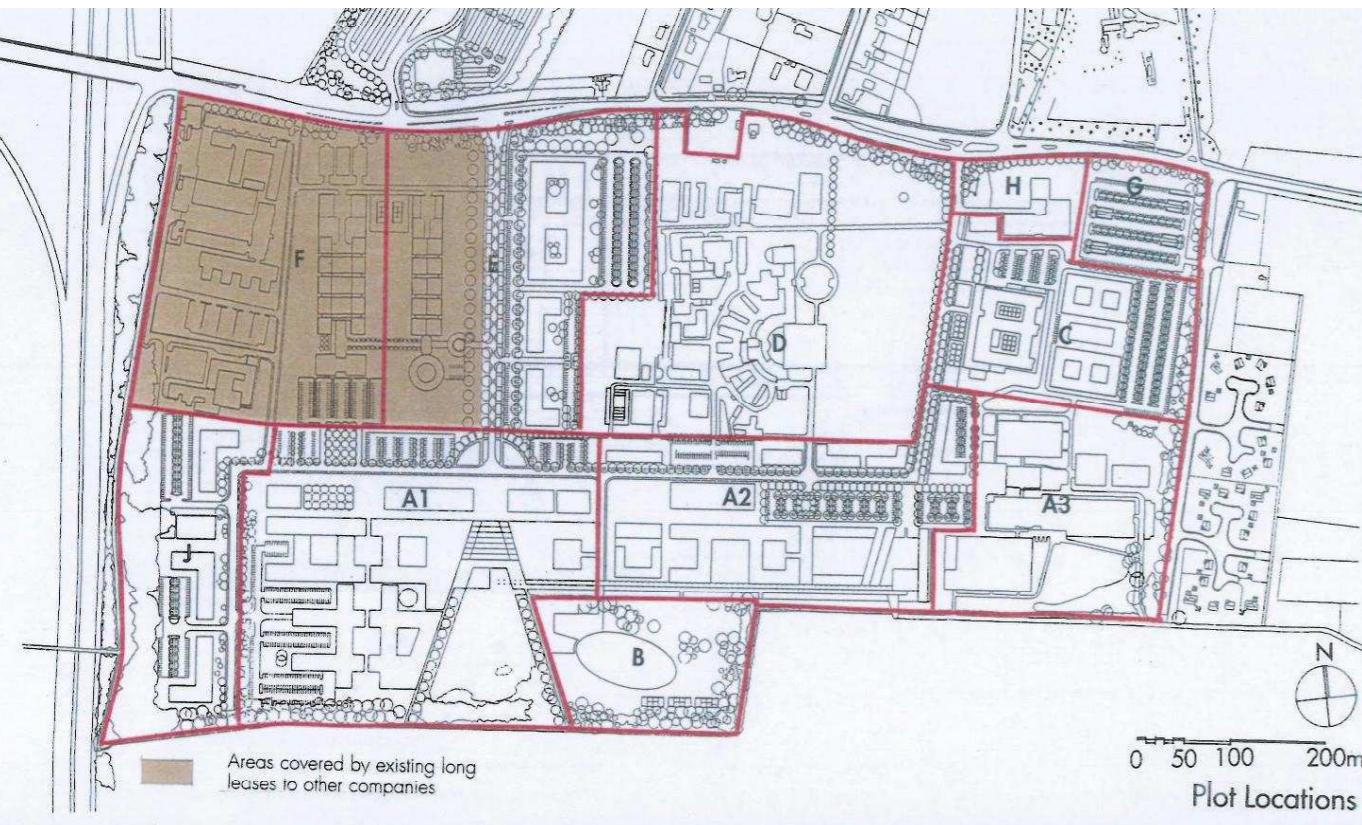
Development height guidelines (1999)

3.6.26 Design Guidelines which were part of 1999 masterplan provided guidance in relation to height of proposed buildings.

3.6.27 The masterplan area was split into development plots and each plot had a baseline height limitation, set as a relative height in relation to the finished ground level (rather than absolute AOD heights). The document provided height guidelines only for the 1999 masterplan development area and not for the areas with existing development - the Schlumberger Research Building, Aveva and British Antarctic Survey (plot F), the Vet School (plot D) and the Cavendish Laboratory (plot F).

3.6.28 In addition to the baseline height, the Guidelines included areas with additional height allowed - as 'landmark buildings' and 'towers'. However, there is no numerical value associated with these additional allowances.

3.6.29 Both baseline height and these additional allowances referred to usable building heights, plus any plant: only flues were allowed to exceed these heights.



97. Original 1999 masterplan drawing - plots

3.6.30 From the diagrams below, it appears that the 1999 masterplan intended to create a development of 3 storeys in height generally, with taller areas of up to 4 storeys in key locations:

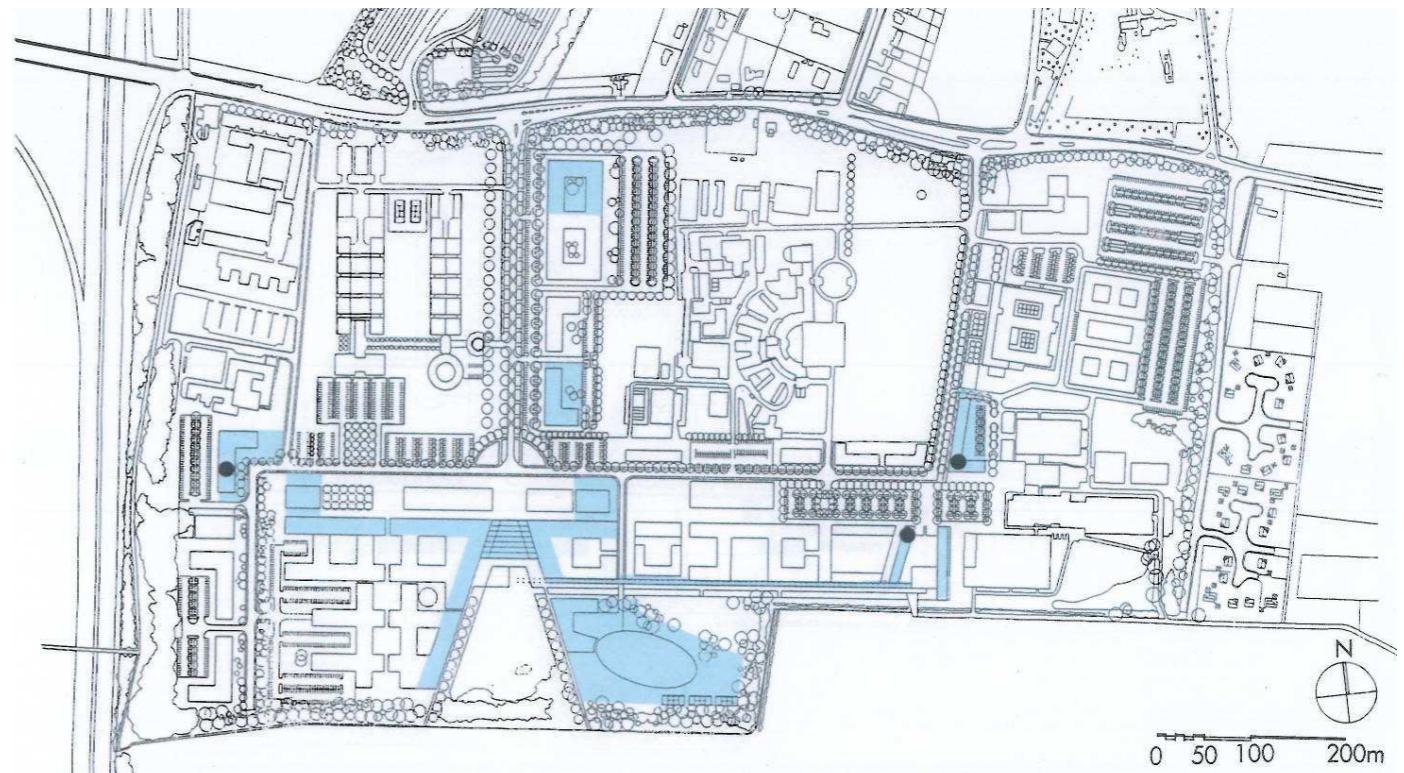
- marking the East and West Forums;
- providing frontage along the southern edge;
- terminating views along key streets; and
- forming a gateway at the junction of High Cross and Madingley Road.

3.6.31 Higher development (15.5m base height) was located to the south and the centre of the site, with lower development (12m base height) located at the eastern, northern and western boundaries.

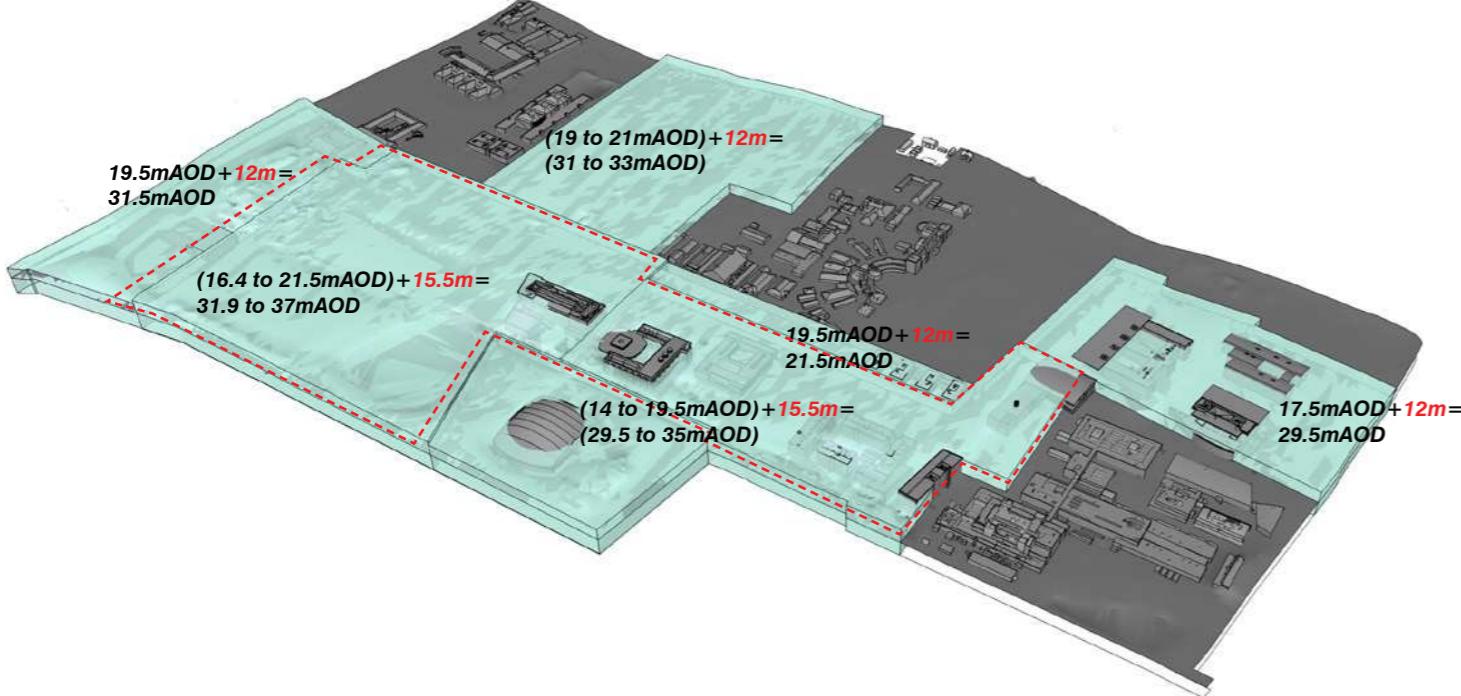
3.6.32 This height information contained within the 1999 Design Guidelines has been interpreted into a 3D model as illustrated on the following page (Figures 99-100).

3.6.33 As the heights provided did not provide values for taller areas and landmark features, an assumption had to be made to allow these to be modelled in a comparable way. An additional height of 4m was allowed above the baseline height for zones for landmark buildings and a further 4m allowance was made for tower locations.

3.6.34 The model enabled an assessment of currently allowed heights. Because the height allowances were not entirely numerical, existing buildings were also included in the model, to compare their compliance and thus validate the assumptions on non-numerical allowances. This model was subsequently used to compare the allowances from the 1999 Masterplan with the massing in the emerging proposals.



98. Original 1999 masterplan drawing - Indicative location for Landmark Buildings and towers



99. Representation of the 1999 Development Guidelines for heights (based on assumed ground floor level heights)

3.6.35 In the model shown in Figure 99, the development zones of the 1999 masterplan have been extruded to either 12m or 15.5m height above the finished ground level, according to the 1999 Design Guidelines for the site. (In this model the ground plane is simply extruded to the required height). All rooftop plant would have to be accommodated within these general heights.

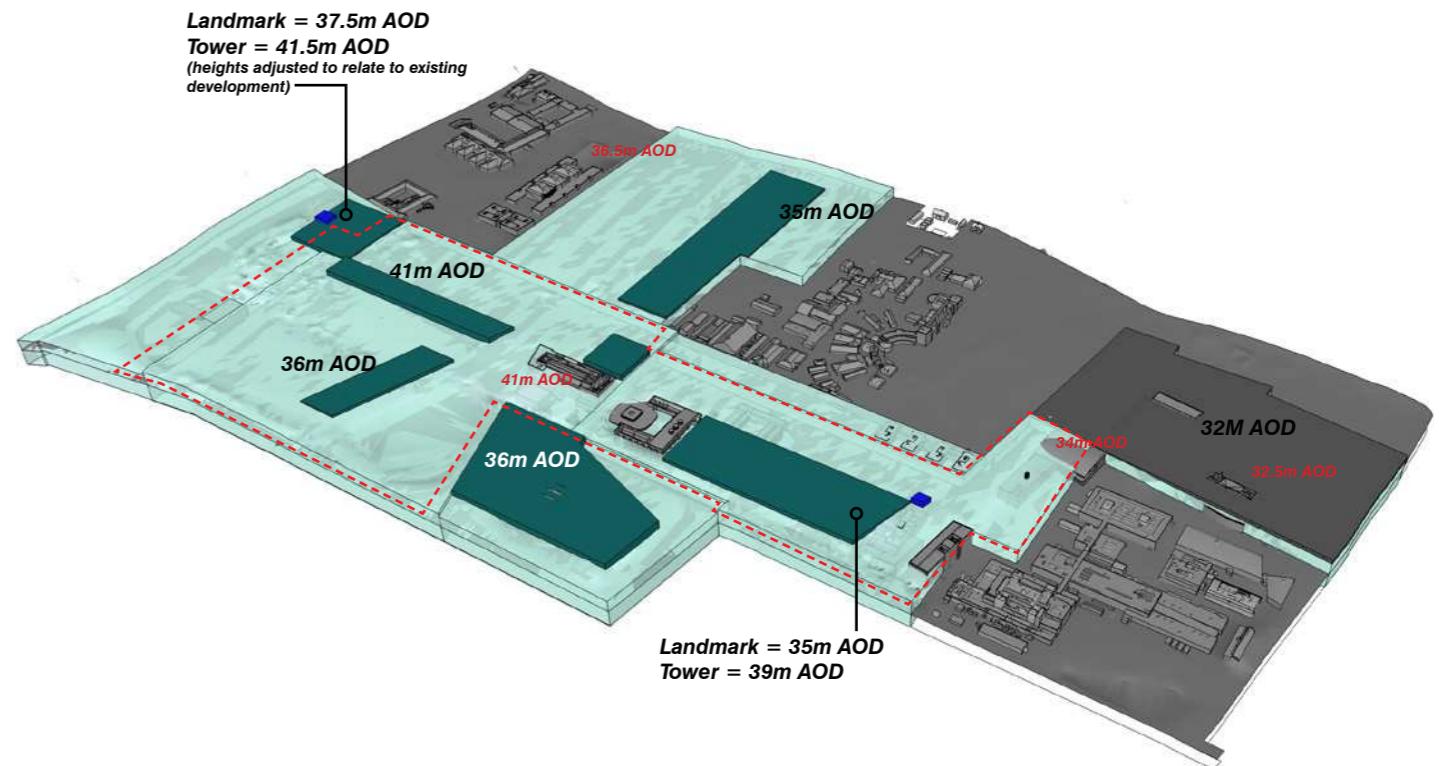
3.6.36 These baseline height guidelines allow buildings to reach up to 37m AOD in the south-western part of the site. Along the southern frontage, the buildings could reach 29.5 to 35m AOD. The area around Schlumberger building, which had a more moderate allowance, could reach up to 33m AOD, due to higher terrain levels. East and west edges are kept lower, at approximately 21.5m AOD in the west and just under 30m AOD in the east.

3.6.37 Existing buildings are shown within the model and the instances where they extend beyond the height limitation can be seen.

3.6.38 Figure 100 shows the zones for landmark buildings and the locations for Towers, as described in the Design Guidelines. To illustrate these elements, an additional 4m has been modelled to represent possible landmark buildings within the zones, while a further 4m has been allowed for locations marked as Towers.

3.6.39 However, in the 1999 Design Guidelines there is a requirement to relate proposed height to that of neighbouring developments, although not necessarily match them. This has the aim in part to produce variation in skyline. So in Figure 100 some of the resultant heights for taller zones and elements have been adjusted to ensure that they relate to neighbouring existing buildings.

3.6.40 In this diagram, the rooftops of Materials Science and Metallurgy building and the CAPE are still visible and extend beyond the height limitation.



100. Representation of the 1999 Development Guidelines for heights - suggested location for landmark buildings (+4m) and Tower locations (+4m)

----- Higher development zone
(15.5m from finished ground level, up to 37m AOD)

34m AOD Existing Building heights

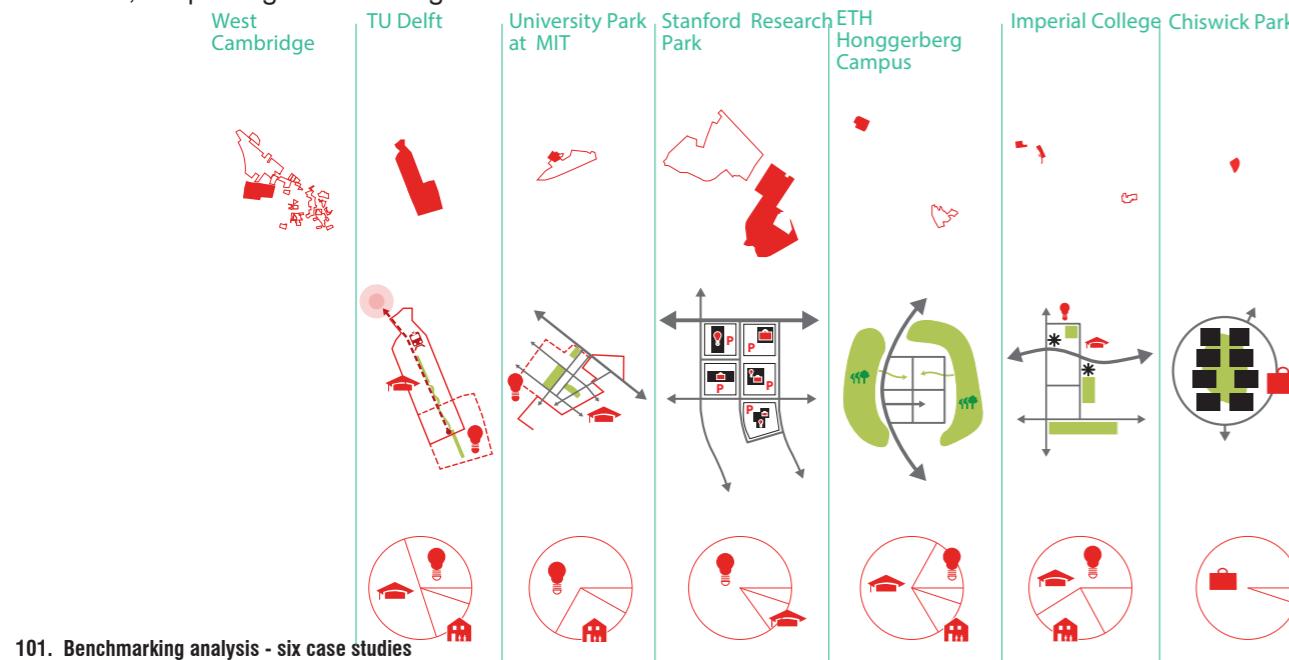
3.7. Benchmarking analysis

Case studies - masterplanning

3.7.1 The six case studies were selected as successful examples and comprehensive precedents which can strongly relate to and inform development at West Cambridge. They also serve to describe the aspirations of similar institutions and to promote an ambitious, but deliverable vision at West Cambridge. They provide relevant precedents on the basis of their scale, mix of uses (academic and/or commercial research), and design, delivery and management considerations. None of the selected examples were an exact match to West Cambridge in terms of (sub)urban context, size and/or maturity but together they provided important lessons. In addition to the 6 comprehensive studies, some specific topics such as open spaces, were covered with additional research.

3.7.2 The gathered information includes:

- development plan shown in a scale comparative to West Cambridge;
- location in city and connectivity to surroundings;
- land use mix and areas;
- massing, urban grain and density;
- urban character: building types, landscaping and open spaces;
- social facilities and supporting uses; and
- access, car parking and servicing.



101. Benchmarking analysis - six case studies

3.7.3 Stanford Research Park and MIT University Park were selected as examples of highly successful research parks which have achieved significant reputational benefits and contributed to links with businesses to their respective Universities. ETH Honggerberg and Technical University Delft provide strong comparable cases of 1960s campuses transformed by integration within their cities at all levels, through greater public transport accessibility, improvements to public realm, open space and social amenity and to the engagement with business and the wider urban community. In London, both Imperial West and Chiswick Park show how scale, density and active management can make all the difference to a high density University mixed use annex - or a high value business address, with a distinctive culture of open space and shared activity.

3.7.4 Each case study shows how many of the questions raised between academic and commercial research at both West and North West Cambridge have been tackled successfully elsewhere, whether in relation to the approach to knowledge transfer or to providing high quality public transport linkages, delivered jointly with their city authorities.

Technical University Delft

3.7.5 Rotterdam, Delft and Leiden have the ambition to be in the top 3 of knowledge and innovation regions in Europe by 2025.

3.7.6 In line with this goal, the University of Delft has focused on linking businesses into the University and students to entrepreneurship, developing accommodation for businesses and research institutes alongside the academic campus.

3.7.7 In addition, significant transport improvements have been introduced, including bus links and a tram line connecting to the central station. This enables the transformation of former car parks and roadways into green, pedestrian and cycle friendly space. The new space, Mekel Park, is located at the centre of the University campus and now connects University buildings that were formerly separated by roads, traffic and car parks.

3.7.8 Immediately to the south of the University campus is Technopolis - a new science park. Over the next 25 years it is expected to become home to scientific institutes, technology start-ups and international companies. The park-like campus is to be a meeting place for researchers and entrepreneurs, where they share their knowledge and work together on innovations in medical technology and industrial biotechnology.

102. Technical University, Delft



ETH Honggerberg

3.7.9 This edge of city University campus has developed out since the 1960s, operating as a satellite to the main Zurich city centre site and focusing on sciences and architecture.

3.7.10 Historically, principally academic in nature and campus style, the University now has an objective of transforming the location into an urban quarter that acts as an interface between academia, industry and the general public.

3.7.11 The new master plan aims at moving towards accommodating entrepreneurial and business collaboration activity with a 'Science City' agenda. It consists of estimated 345,000m² of development based on a flexible framework that can adapt to the constantly changing demands of science, the economy and society without destroying coherence – with minimal design rules.

3.7.12 The University also plans development of over 1,000 student housing units on a nearby site.

3.7.13 The University has set up Division for Events and Location Development to help to organise events and enliven Honggerberg Campus. The events include food markets and music events, a student-run solar cinema in summer, Scientifica science days and various cultural activities, events and workshops integrating science, art, technology and design. One of the events is "Treffpunkt Science City", a popular science series that conveys science to wider community and attracts numerous visitors.

103. ETH Honggerberg Campus



MIT University Park

3.7.14 University Park is an urban address at the University's doorstep, focusing on commercial floor space and high quality residential units. The Park provides an option for companies growing out of MIT's incubators.

3.7.15 Property developers Forest City started developing the site in the 1980s, as a relatively dense yet campus style development, operating immediately alongside and indeed mostly surrounded by MIT's principal campus.

3.7.16 MIT University works hard to create an entrepreneurial culture and collaborate with business on its own campus, but for those businesses wanting to lease dedicated floor space they are encouraged to look at University Park and the other commercial offerings in the vicinity – delivered by MIT's own investment arm and a number of other landlords.

3.7.17 The Forest City masterplan includes limited refurbishment of old buildings but is principally a modern environment that includes 210,000m² of development and approximately 12,000m² of open space that is intensively used by the community at the location. There are no known plans for further intensification of use or expansion by Forest City.

104. MIT University Park



Chiswick Park

3.7.18 This example is included as a high quality and highly successful commercial environment, promoting an 'enjoy work' approach with extensive on-site social activities.

3.7.19 The site is highly accessible (M4 / bus / train / air) and 75% of staff arrive by public transport.

3.7.20 The site is masterplanned around well designed and utilised central pedestrian public space or 'inner garden'. This is a car free environment, with vehicle access and servicing restricted to site perimeter with discreet undercroft car parking. The total built area is approximately 180,000m².

3.7.21 The site is characterised by very active on site management and maintenance teams, which organise extensive occupier events programme – seasonal, educational and leisure activities.

3.7.22 The estimated population of the site is 12,000 and the site provides extensive on site leisure and catering facilities but also incentivises them to use local off site amenities.

105. Chiswick Park, London



Interim uses and soft infrastructure

3.7.23 Examples for interim uses and soft infrastructure (i.e. active management of open space and shared facilities) have been drawn from the six case studies and Harvard University open space study.

3.7.24 In a number of examples, universities or developers support campus life through the work of dedicated teams.

3.7.25 MIT's Centre for Art, Science & Technology (CAST) intends to promote within MIT a culture where the arts, science and technology interrelate, mutually informing modes of exploration and knowledge. CAST promotes and supports artists' residencies, public performances, exhibitions, installations and a biennial symposium, using the spaces and facilities within the Campus. One of their most popular events is FAST, a Festival of Art, Science & Technology which includes a variety of performances, debates and installations which appear throughout the MIT campus, adding playfulness and animation to the different open spaces.

3.7.26 Chiswick Park owes part of its success to active on-site management and maintenance teams. Their programme includes a range of seasonal educational and leisure activities which bring activity to the excellent public realm and outdoor spaces and promote social mixing between companies.

3.7.27 Offices from across Harvard University contribute to the collaborative programming and successful implementation of events and activities. One of the key common spaces in focus is the Plaza, a recently renovated large open space with a programme of activities including:

- markets such as: weekly food market, open market, "Harvard Stuff Sale": beginning of the year sale of used items donated at the end of the year, sponsored by Harvard Recycling and Harvard Habitat for Humanity, daily food trucks;
- performances: the Office is looking for talented actors, musicians, singers, poets, dancers, jugglers, magicians, performance artists or entertainers (students, faculty or staff) to perform for the community;
- sports activities: ice rink in winter season, oversized chess set, table tennis, work out stations;
- self service cycle repair station.

Key lessons

3.7.28 Key lessons from case study masterplans which have informed strategy for development at West Cambridge include:

- **Relationship between Academic and Commercial** has a significant impact on the character and culture of a campus - appropriate proximity and sharing of facilities provides benefits to both communities and helps viability
- **Knowledge transfer (exchange of knowledge between organisations):** beyond planning for businesses to be located on the site it is important that facilities and support are delivered to encourage research and R&D growth through collaboration
- **Scale of commercial space** points to importance of critical mass to grow a reputation of a knowledge cluster
- **Connectivity** is important both to attract businesses and to reinforce unity between the academic sites
- **Evolution from car based environment** is required to create conditions for collaboration
- **Open space:** quality and success rely on activities that happen on and around them
- **Shared social spaces** are necessary to provide necessary gathering space and space for interaction
- **Soft infrastructure:** a number of sites have dedicated teams in charge of management and events

106. Harvard Plaza



Case studies - buildings for academic or commercial research

3.7.29 The team has analysed a range of academic and commercial developments, varying in size and complexity to illustrate challenges and opportunities brought by specific aspects of research buildings into their context, as well as to illustrate some exemplary organisational responses.

3.7.30 The current and future users' requirements for the site demand top quality academic and commercial research spaces which need to:

- be efficient and flexible for future change;
- provide spaces to facilitate interaction and exchange of ideas;
- provide spaces suitable for a range of research specific activities, many with onerous technical and health and safety requirements;
- be diverse to provide an 'ecosystem' of work spaces and respond to different types of demand.

3.7.31 Precedents for buildings which have informed the masterplan include:

- different types of academic buildings - related to size and complexity, they vary from small and compact to extra large complexes with internalised connective elements;
- types of commercial research buildings and districts - related to building floorplates and sizes and arrangements of buildings and open spaces;
- systems of connecting/circulation spaces within the buildings;
- social facilities, including catering facilities, teaching and meeting spaces, libraries and other emerging spaces for collaboration and learning;
- predominant types of spaces and their implications on the masterplan - floorplate size and height, daylight, safety, technical and servicing requirements, etc.



Configuration and relationship to open space

3.7.32 Science Faculty Building in Amsterdam Science Park is an ensemble of three buildings with an area of approximately 65,000m². The buildings are joined by a circulation loop and in places raised on pilotis, forming two semi enclosed yards with entrance and key social spaces in between. Such an arrangement creates protected and well scaled open spaces while providing dry and warm connections within the building.

3.7.33 Campus for pharmaceutical company Novartis, in Basel, is developed on a former factory site and keeps its main urban structure in the new development. The company has opted for a masterplan of separate buildings in which different units are located, utilising network of open spaces and buildings with social amenities to connect the campus. Open spaces consist of pedestrian streets and squares, creating a tight, intimate environment easy to navigate.

108. Science Faculty Building, Amsterdam



109. Novartis Campus Basel: well proportioned open spaces



Main connecting spaces

3.7.34 Concepts of transparency and connectivity are key for the new MIT Media Lab building in Cambridge, MA. The working spaces are arranged around two connected atriums leading to a rooftop conference suite with a terrace and views of Boston. This arrangement provides passing insight into research and brings ample daylight into the working spaces. Stairs are visible and clearly located to encourage movement.

3.7.35 Science Faculty Building at Amsterdam uses difference in floor to ceiling height between laboratories and write-up office spaces to create split level corridors with excellent visual connections across.

110. MIT Media Lab



111. Science Faculty Building, Amsterdam



Predominant types of working spaces

3.7.36 Buildings for research in physical sciences and technology consist of several predominant types of working spaces: workshops (large or medium floorplate with extra floor to ceiling height), dry or wet laboratories and clean rooms, offices and write up spaces for individual work, and meeting and informal spaces for collaborative work.

3.7.37 Large clear span space of the IMC Engineering workshop at the University of Warwick allows for easy and safe movement of people and equipment and is flexible to accommodate layout changes which various projects require. Large spaces lit from above can also be subdivided for better containment of noise and dust.

3.7.38 Small office spaces at the Science Faculty Building in Amsterdam are laid out for individuals to groups of 3 to 6, and intended for concentrated work. Glass partitions create a sense of openness and communication while reducing noise from circulation spaces.

112. Engineering Workshop, University of Warwick



113. Science Faculty Building, Amsterdam



Meeting and social spaces

3.7.39 In all of the precedents, social spaces are usually provided immediately alongside connecting spaces, creating an exaggerated circulation network tying the various programmes together.

3.7.40 The Science Faculty building in Amsterdam has catering facilities addressing the main loop. The seating areas are designed in ways that can also accommodate small meetings and group work.

3.7.41 It is also ensured that social facilities can spill out into open space, animate it and create inviting environments for external users. Such aspects are important for collaboration and sense of community.

114. Science Faculty Building, Amsterdam



115. Science Faculty Building, Amsterdam



Key lessons

3.7.42 Key lessons which have informed the masterplan:

- Accommodating uses within large buildings or in closely arranged buildings promotes **interaction between users**;
- **Open spaces** should be well defined by buildings and animated by **active** uses where possible;
- Internal circulation systems of large buildings are best arranged as a **highly active network of connecting spaces**, animated by locating catering and other shared spaces alongside;
- The mix and relationship between **key types of spaces** has a strong impact on building typology (size, floorplates, height);
- Relationship between **different types of working spaces** (offices, labs etc.) has a significant impact on users' experience and ease of daily use of the building;
- **Servicing access requirements and outdoor service yards** can limit activity along some parts of the building/block perimeter, for reasons of safety and access restrictions;
- It is necessary to create a spectrum of 'quiet to noisy' spaces for varieties of learning environments, from individual focused to group collaborative work;
- There needs to be a **hierarchy of social and shared spaces**, varying in size and catchment; from central canteens to small tea rooms nested within work spaces

Case studies - Cambridge landscapes and spaces

3.7.43 The selected precedents for scale and character of open spaces are taken from Cambridge sites. These examples are indicative of public realm environments that draw inspiration from the local context and create links back to the city.

3.7.44 The following precedents are selected and inform the masterplan in terms of character, design attributes, connectivity, scale and amount of open space required to support different activities.

3.7.45 To create a unified but distinct landscape that's relevant to Cambridge, a series of attributes have been identified from these precedents, related to landscape types identified in the existing wider context: agrarian, transitional and structured.



116. The existing West Cambridge site - to scale

Coton Footpath & Adams Road, Cambridge



Agrarian landscape

This is an example of agrarian landscape. It includes some remnants of agricultural landscape such as boundaries, markers such as trees, hedges and ditches that define the network of open spaces and routes.

Attributes:

- *Informal mixed species rich hedgerows and specimen trees within Hedgerows;*
- *expanse of biodiverse open grasslands and species rich meadows.*



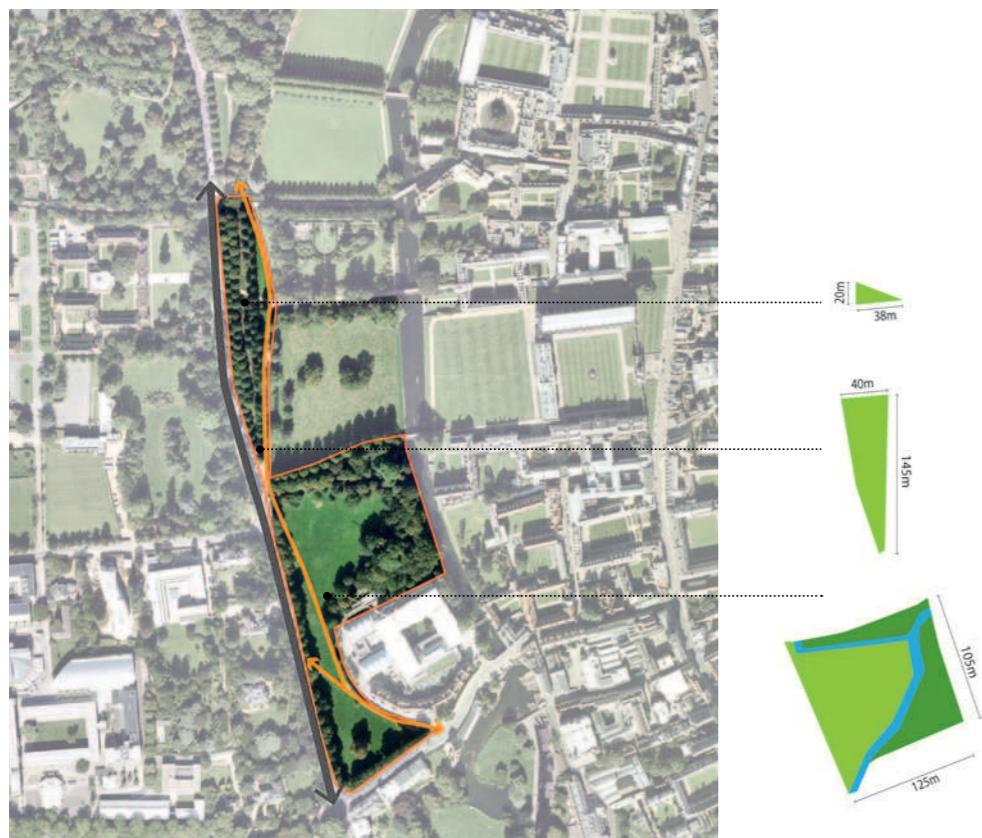
117. Adams Road



118. Southern Edge of the site and Coton Footpath



Queen's Road, Cambridge



Transitional landscape

- Connecting space accommodates pedestrian and cycle routes within a landscaped area, as an alternative to being next to the road;
- curved paths with ornamental tree and shrub planting widen and narrow with usable and 'borrowed' (visible but inaccessible) landscape;

- open expanses of lawn for informal activities, rest and socialising;
- punctuated by large tree planting.

119. Queens Road, Cambridge



Christ's Pieces, Cambridge



Structured landscape

- Criss-crossed paths, form multiple open lawn areas and nodes for encounters;
- In the large area, the buildings do not communicate across the open space - they are distant and detached;
- In the smaller area, the space feels more enclosed and a neighbourly relationship between buildings is maintained;
- Large trees subdivide the space and create smaller, more defined areas;
- Sports pitches are provided in the corner with least people movement;
- Desire lines are uninterrupted and areas to stop and rest are established at nodes;
- Open areas are provided at different sizes to facilitate moderately large as well as small, intimate activities.

120. Christ's Pieces, Cambridge

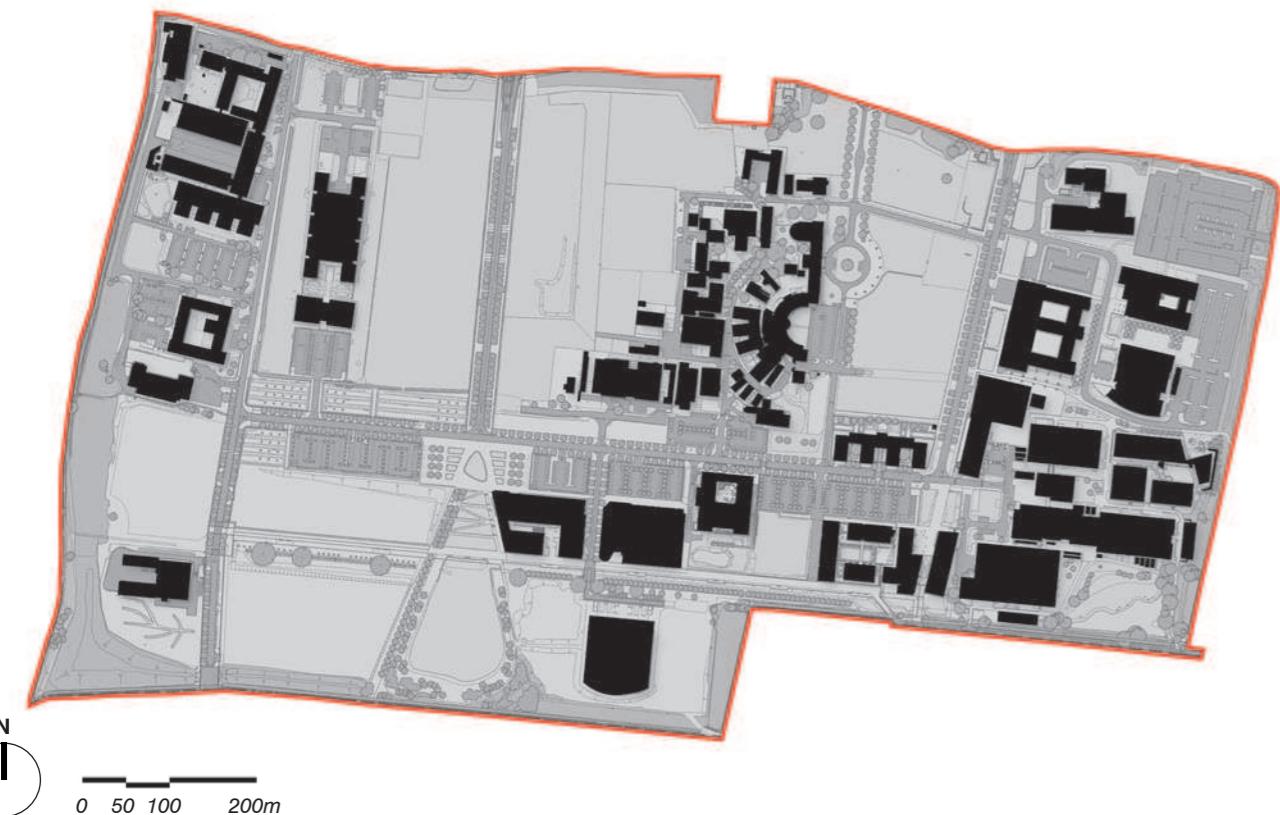


Case studies - An academic public realm

3.7.46 The selected precedents for scale and type of open spaces originate from the masterplanning case studies and from additional relevant examples of public realm. In the main, these examples speak of a particular type of public realm that serves to support academic activity, an environment that helps to attract students and staff and creates links back to the city spaces and streets - an academic public realm.

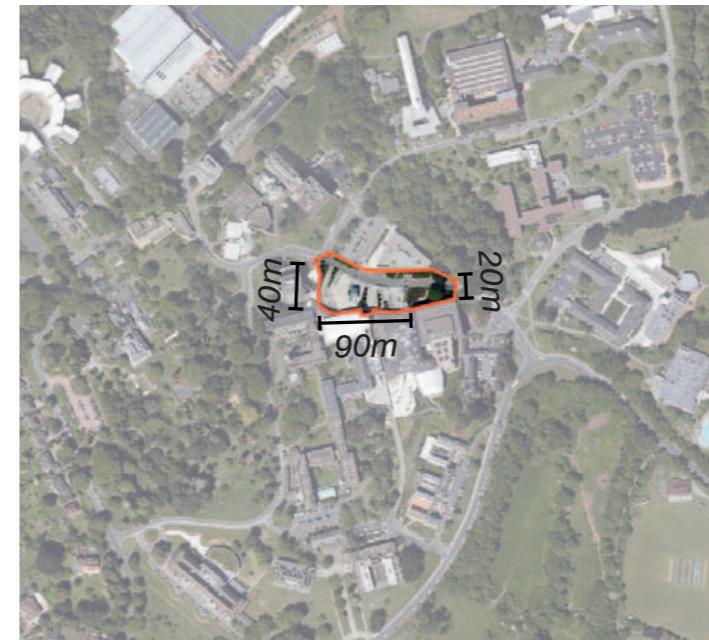
3.7.47 The examples were selected for their relevance to the use of open spaces and public realm to draw a campus together and promote activity and interaction. Other precedents are informative by showing the potential for high quality open space to transform the identity of an area.

3.7.48 The selected precedents inform the masterplan in terms of character and content, amount of open space required to support activity and support decisions on the scale and density of development, amount of enclosure and range of activities located within the public realm.



121. The existing West Cambridge site - to scale

Exeter University, Exeter



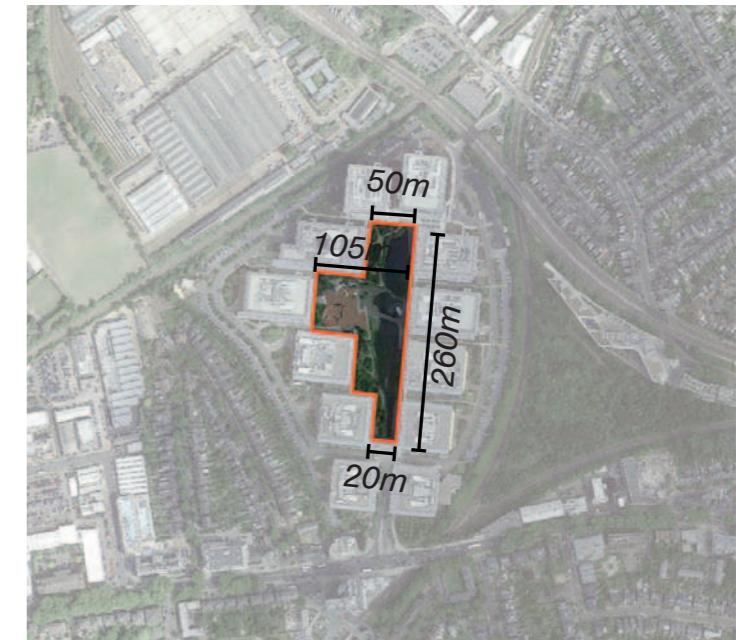
The Forum open space at Exeter University connects key social facilities of the University: Main Library, Theatre, Great Hall and the recently completed multi purpose Forum building. The Forum steps following the natural terrain of the campus and leads to the wooded park area.

The Forum building joined previously detached/unrelated buildings to provide a defining south edge to the Forum. The Forum now balances a sense of enclosure and a sense of openness, with consistent 2-3 storey frontages and 4-5 storey accent buildings.

122. Exeter University



Chiswick Park, London

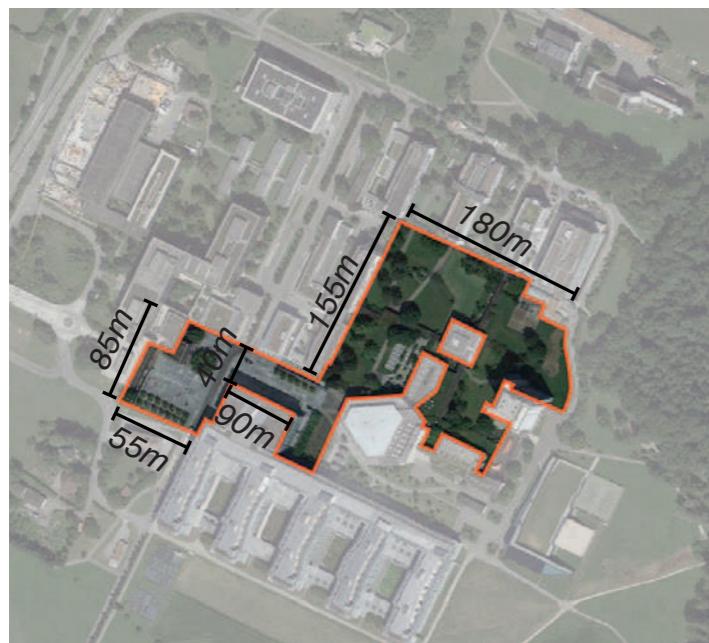


The central space at Chiswick Park is a generously landscaped area with a Lake and a multi-purpose outdoor events space.

It is useful to look at this space as a successful precedent for a system of linked spaces that might be possible at the West and East Forums. The space at Chiswick Park is larger in size but enclosed, overlooked and defined from all sides by development. The space is the central visual and active focus for the buildings and their occupants. The Lake, although not a usable space, provides a relaxing setting and spatial focus. The space provides the development with a unique, enjoyable identity.

123. Chiswick Park, London



ETH Zurich, Honggerberg

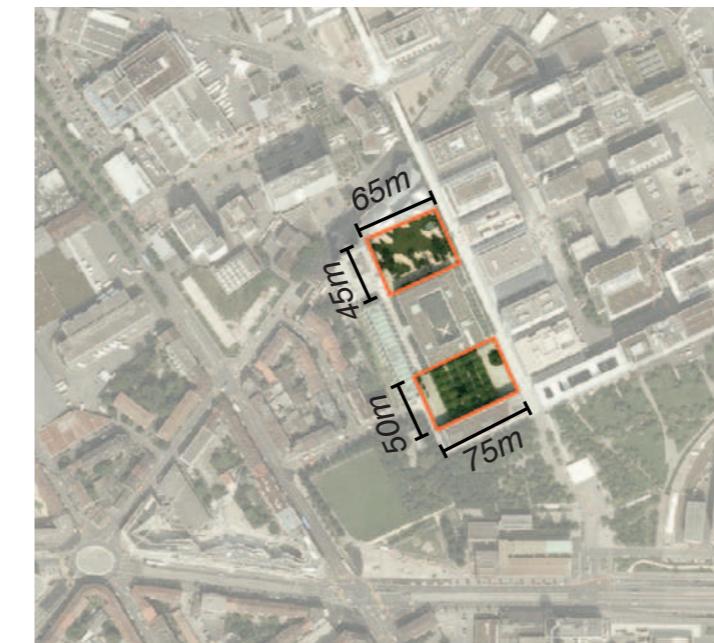
Plaza at ETH Honggerberg is constituted as a sequence of connected spaces which traverse a significant difference in levels. Two of the spaces are hardscapes, leading to an upper level and a soft, leafy lawn space.

The Plaza is the 'heart' of the site, with old and more recent social buildings such as teaching/conference facilities and catering. The Plaza is also home to various temporary uses; including markets, science and art showcases, events, exhibitions etc.

Sidgwick Site, Cambridge

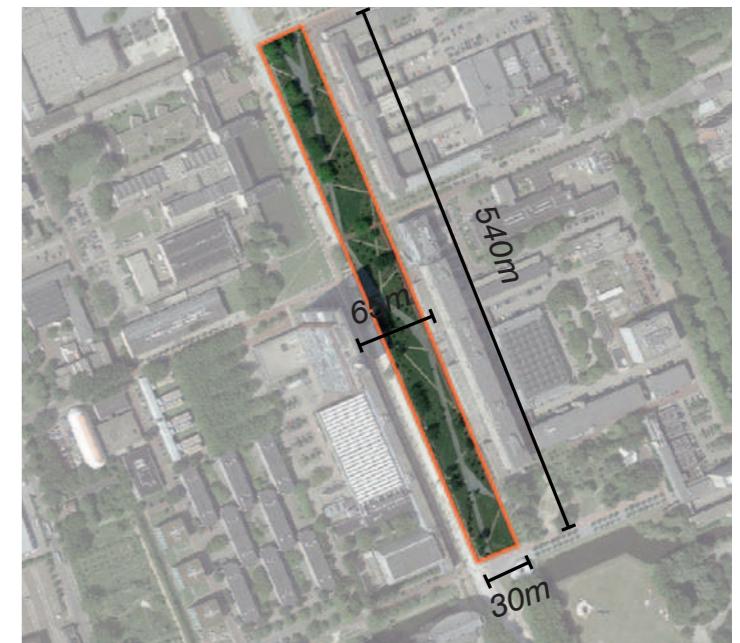
Sidgwick Site at Cambridge is one of the sites included in the Cambridge density comparison study (Section 3.6.5). With a pleasant density and balance of built form and open space, the development informs both development and public realm at West Cambridge. The buildings range from 3 to 5 storeys and are often raised on pilotis, letting open spaces flow between buildings.

The site contains linked open spaces varying from busy tight hardscapes in the centre to softer, calming courtyards.

Novartis Campus, Basel

Novartis Campus is arranged on a grid and the open spaces are streets and voids/squares within it.

The campus is arranged in multiple buildings, linked by the open space network. Because of this, squares and streets are car free and in intimate scale.

Mekel Park, Delft

Mekel Park is a former car park and servicing area which has been transformed into a park and a connecting spine for the campus.

The Park accommodates cycle routes and paths zig-zaging and linking the buildings, as well as a space for a tram line. This geometry creates lawns where people can meet and relax.

124. ETH Zurich, Honggerberg



125. Sidgwick Site, Cambridge



126. Novartis Campus, Basel



127. Mekel Park, TU Delft



3.8. Development context - conclusions

Opportunities for a change in approach

3.8.1 West Cambridge is well located in comparison to other economic clusters in Cambridge, being close to the city centre and other University sites. In addition it has an advantage in terms of evolving in conjunction with NWCD, located immediately to the north. As NWCD is developed, the residential and University population in the area will increase and will support additional local facilities and social activity.

3.8.2 The changing context in the west of the city provides an opportunity to change the general perception of West Cambridge - as an uneventful and remote site - to intensify the use and transform the site into an integral part of the City with a stronger sense of place. However, this will require a step change in approach to development and management of the site, including access, quality of environment and social facilities.

Connectivity

3.8.3 The site is well located in strategic terms for cars/vehicular connections but there is a lack of sustainable transport options. The North West Cambridge Development will have an impact on this by improving public transport services, an extended pedestrian and cycle network, new highway connections and local junction enhancements.

3.8.4 By offering new quality facilities locally – shops, leisure facilities, primary education and a hotel - the uses at NWCD will encourage movements across Madingley Road, from West Cambridge to the new local centre and create potential for relating these community uses to academic uses at Madingley Rise.

3.8.5 The Coton Footpath is an important and strong link to the City Centre. However, the West Cambridge site does not have an adequate relationship with the Footpath: the arrival points are convoluted, hidden, and in many places along the southern frontage there are no immediate overlooking uses. Furthermore, the microclimate at the exposed southern edge can be inhospitable, with frequent strong winds.

3.8.6 A new approach to access at West Cambridge will need to address these opportunities and challenges by adopting public transport and green travel plan initiatives, extending the public transport, cycle and pedestrian networks into and through the site, and by providing a more pleasant walking and cycling environment.

3.8.7 In addition to the public transport improvements which are part of NWCD, the new West Cambridge transport strategy will also need to look into accommodating public transport routes which are part of City Deal, the key programme for strategic city wide transport improvements.

3.8.8 As the populations of both North West and West Cambridge grow, it is expected that public transport will develop a better user base and become economically more sustainable, thus allowing for a long term high quality service and a gradual reduction in car dependence.

Character and built form

3.8.9 The site is characterised by a piecemeal, building-by-building development, and many of the original masterplan ideas which were aimed at creating overall coherence have, over the course of development, been substituted by on-plot solutions. Much of this is due to car-dependence: individual buildings and clusters of buildings are fronted and surrounded by car parking leaving little or no opportunity for interaction and activity in the public realm. Apart from resulting in poor overall character, such piecemeal development with abundant surface parking does not make the best use of the land.

3.8.10 Although there are large areas of undeveloped or open land currently on site, these are not accessible spaces and neither staff, students nor the surrounding community can use them. The existing accessible open spaces are either insufficiently defined by built form (e.g. East and West Forums and the Lake) or overlooked by backs and servicing areas (the Pond). As a result, even these (accessible) open spaces are not activated by any social facilities and are only sporadically used.

Usable Open Spaces

- Existing open space accessible to all site users
- Landscape amenity space for specific site users
- Private sports/recreation

Other Spaces

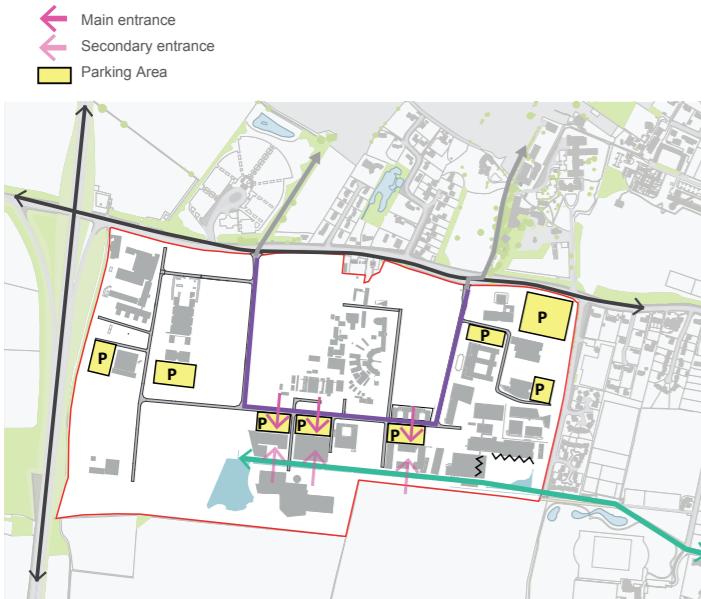
- Paddocks (Inaccessible, vet school open space)
- Foreground landscape space (Inaccessible or offering visual amenity only)
- Empty development plot
- Car parks
- Woodland buffer
- Water bodies
- Surrounding sports & recreation amenity space



128. West Cambridge site: existing and buildings under construction, 2016



129. West Cambridge site: existing landscape features



130. Current surface car parking

3.8.11 Unfortunately, some of the 1999 masterplan guidelines, such as separation of car and pedestrian traffic and car oriented commercial research development, are not supportive of a pedestrian environment and will need to be revised. This is most evident in the southern academic core area, where prioritisation of landscape facing the south frontage for entrances has led to a lack of definition to the main vehicular loop in the north. The buildings are set back from the main roads and accessed via parking lots.

3.8.12 The views out of the site are strong. The existing masterplan already celebrates views to the south and emphasises the southern frontage to the open agricultural land. With the new masterplan, there will be an opportunity to give due importance to the views back to city from within the site, which are more sparse and subtle, but which could have a positive impact on identity and a sense of proximity/unity with the City.

3.8.13 In addition, the new masterplan presents the opportunity to celebrate and emphasise the prominence of the Grade II* Listed Schlumberger Research Building. A new view corridor can be established to this landmark building and a new sympathetic setting formed.

3.8.14 Public transport and green travel plan initiatives, together with the proposed additional development and inclusion of the entire site into the new masterplan could help reverse this tendency of piecemeal character and create conditions for delivery of the pedestrian environment originally envisaged. It will be possible to address the issue of uneven density and lack of coherence by identifying a series of walkable and pedestrian scale character areas,

unified by a site-wide public realm network. Such approach will also provide an opportunity for landscape and public realm to be more prominent in the perception of the site: as a series of identifiable open spaces users can relate to.

3.8.15 Like NWCD, the West Cambridge site has the potential to form a robust and defined edge to the city towards the M11 motorway and the countryside beyond.

Community

3.8.16 The site currently provides a workplace to academic and commercial staff, students and also a home for residents in just over 200 units. Also, there is a nursery and the University Sports Centre which are used by the wider community. Nearby uses include residential developments, academic uses and, in future, the new retail and community uses at NWCD. Currently, the site does not provide retail and other community uses, and, although there are catering facilities, they are hidden within buildings.

3.8.17 Although the site at present does have some catering facilities, the lack of social facilities (including catering) is often identified as the most negative element in perception of the West Cambridge site. The reason is that the investment in shared facilities, social amenity space and the public realm has so far mostly taken place to serve individual plots and the needs of each development, rather than the needs of the site as a whole.

3.8.18 The academic buildings in the east and south of the site are high quality research facilities, built to high standards, well utilised and well reviewed by their occupiers. This is particularly the case with Computer Laboratory (William Gates building) and Institute for Manufacturing. In the east, the Schlumberger Research building is also an exemplary workspace which brings together workshop, labs, offices and social spaces under one iconic roof, a city-scale landmark. The occupiers are satisfied and proud of their buildings.

3.8.19 However, the challenge these and other buildings face is how to integrate with other buildings. In an environment which lacks critical mass and footfall, they fail to meet and together define a shared open space. They are mostly separated by parking lots and the large impermeable paddocks of the Veterinary School.

3.8.20 The commercial partners have been isolated on the far west side of the site, beyond the paddocks, the undeveloped plots and car parking areas. There has been little interaction with the academic side of the site.



131. Large existing occupiers

Climate

3.8.25 The already mentioned car dependency and lack of critical mass to support sustainable transport are key challenges in making the site more sustainable.

3.8.26 At present the share of cycling as a mode of transport is satisfactory amongst academic staff and for trips to the City Centre but more needs to be done to provide an alternative sustainable solution to car users commuting from more distant locations.

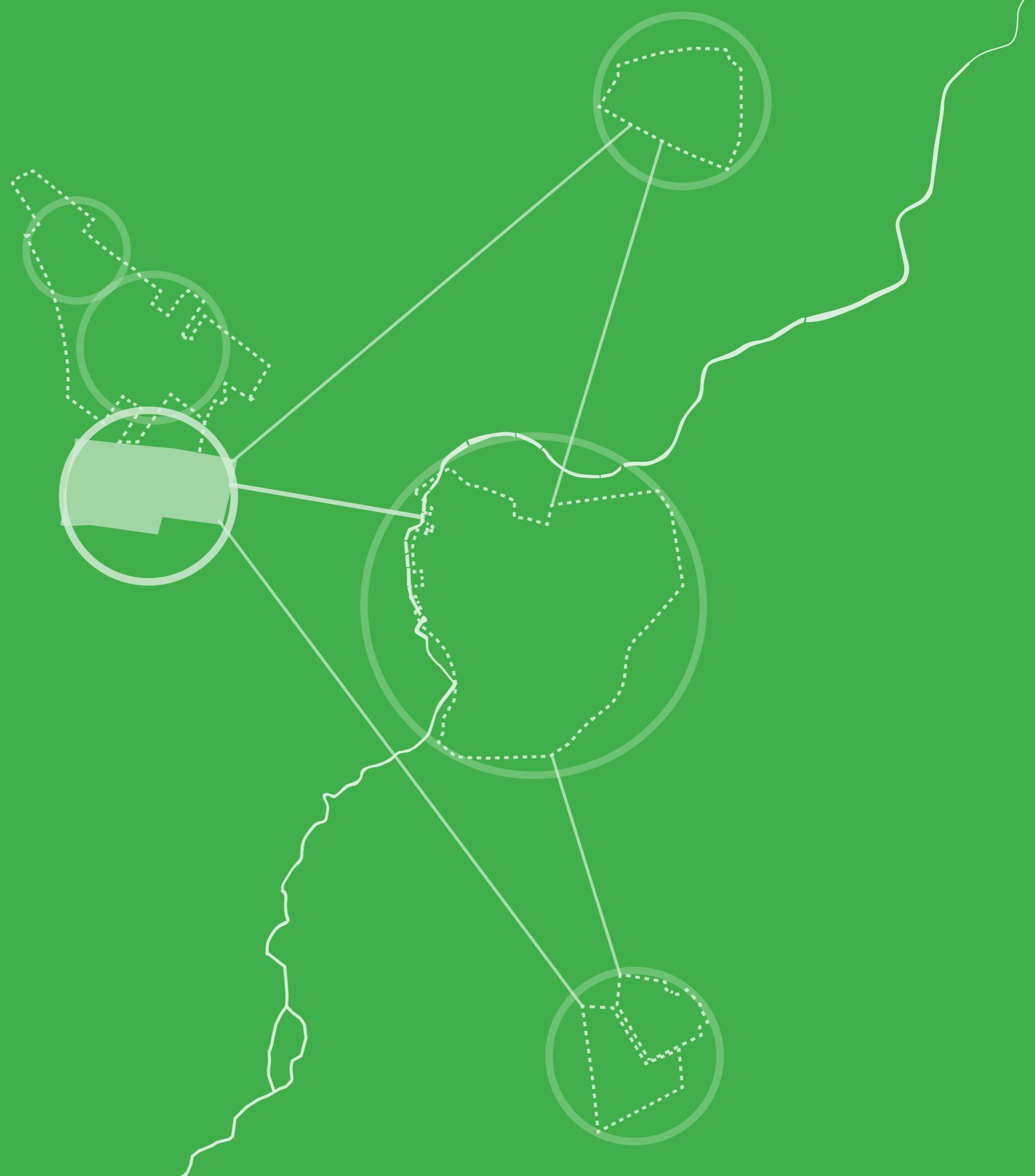
3.8.27 The existing blue infrastructure – Canal side and the Western Lake – forms a good drainage system which can be reinforced to suit the needs of the new developments.

3.8.28 The site has a high degree of open and undeveloped areas but the quality of landscape varies. The majority (almost the whole central area of the site) is not accessible and is fenced off for the use of the Veterinary School. The best quality pocket landscapes are private or used by a limited number of occupiers and are often in an awkward relationship with the surrounding built form: the south-eastern pond and the Veterinary School inner area with tall trees are both faced by service yards and interrupted by service access. The Schlumberger Research building has a courtyard which is beyond their security line and British Antarctic Survey has a landscaped area in the back of their plot.

3.8.29 There are opportunities to transform the site into a more sustainable place in line with the University's aspirations. With increased density and intensity of development, site wide strategies such as energy, servicing, recycling etc. could be developed in a deliverable and economically sustainable ways.

3.8.30 Relocation of the Veterinary School and redevelopment of the Cavendish Laboratories will allow for a new public realm and better connectivity across the site.

3.8.31 Increased density will lead to greater population numbers, activity and greater interactions between different types of site users. It will support provision of public realm and social spaces and lead to a better sense of place on the site.



MASTERPLAN DEVELOPMENT PROCESS

A4

A1 University need	A2 University vision	A3 Development context International, Strategic and Local	A4 Masterplan development process	A5 Proposed development
			<p>University response Design response Evolution of the proposals</p> <p>Key issues:</p> <p>A comprehensive development strategy and flexible framework for development Sustainability Strategy Requirements of Current and Future Occupiers Opportunities for transformation Evolution of the proposals in response to consultation</p>	

4. MASTERPLAN DEVELOPMENT PROCESS

4.1. University response

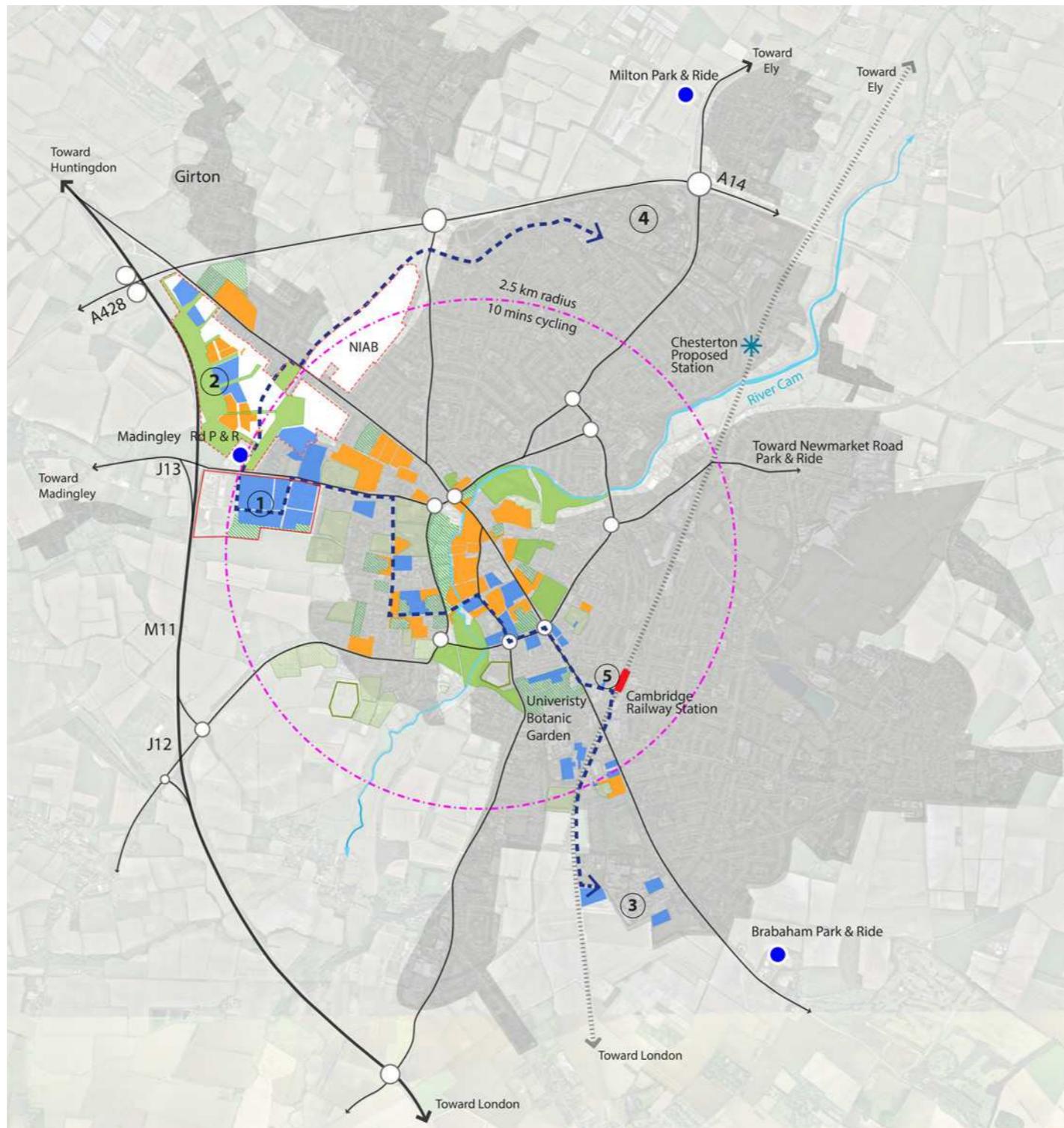
The University's Strategic Brief

4.1.1 In order to maintain global competitiveness, the University needs to secure additional amounts of high quality research space and, in parallel, strengthen its reputation in innovation and collaboration with industry.

4.1.2 Most of the University's sites are already intensively developed. The partially developed 66ha West Cambridge site is one of the two main exceptions to this, the other being the 150ha North West Cambridge Development.

4.1.3 The current presence of occupiers related to physical science and technology and further capacity on the West Cambridge site and the North West Cambridge Development, provide the University with an opportunity to gradually accommodate other related disciplines and establish the West Cambridge campus as a strong academic cluster for physical sciences and technology.

4.1.4 Additional capacity for commercial research space (catering both to start ups and major industry occupiers) is required to transform the West Cambridge site into a commercial cluster of significant scale. Here the University has a unique opportunity to bring the academic and industry research clusters together and promote the site as a campus for exchange of ideas, innovation and collaboration with industry research partners. As the comparison with world competitors indicates, such co-location provides Universities with reputational and financial benefits while creating a resilient employment base for their host cities.



132. Academic sites in city context

3.8.32 The two sites (West Cambridge and North West Cambridge) provide the University with an opportunity to deliver new development in line with the aims and objectives identified in the Estate Strategy:

- to maintain a locational strategy that is consistent with approved Reports and Operating Statements; which includes the clustering of associated University disciplines;
- to provide buildings and spaces with high levels of sustainability;
- to provide buildings and spaces with high levels of design quality;
- to deliver optimum space efficiency in existing and new spaces, including efficiency in the sharing of lecture spaces and catering facilities;
- explore options to accommodate a critical mass of commercial development at the West Cambridge.

Requirements of current and known future occupiers

4.1.5 The team has drawn from stakeholder engagement, previous experience and selected case studies, to establish understanding of the functional requirements of current and future occupiers, both on a occupier by occupier basis and collectively.

4.1.6 The principles set out at the earliest stages of the process were refined against the high level needs and requirements of key occupiers.

4.1.7 Important lessons have been absorbed in relation to what is required to create and maintain a thriving research environment and how to establish a commercial address, while avoiding perceived conflicts with the independence of academic research and teaching activity.

Stakeholder engagement

4.1.8 Stakeholder engagement included gathering feedback through analysis and interviews with the existing occupiers and prospective future occupiers: These included but were not limited to:

- Cavendish Laboratory (Department leadership and appointed space consultants and the design team). A detailed building brief prepared by the consultants has directly informed the strategic masterplan brief. To date, the masterplanning team has continued to liaise with the Department's appointed architect, Jestico Whiles, to ensure the needs of the Department and the emerging architectural designs are accommodated within the proposed masterplanning framework;
- Department of Engineering (Department leadership and subsequently appointed design team). The masterplanning team has provided an initial assessment of the Department's spatial needs and has provided a design response, which was included in the first version of the illustrative masterplan (February 2015). With the appointment of Grimshaw Architects to produce an inset masterplan and the design for its first phase (Civil Engineering building, received planning approval in Feb 2017), the design has been further refined and informed by closer collaboration of the Grimshaw team with the Department. The current design, included in the updated version of the illustrative masterplan which is the basis of this planning application, responds to spatial and typological needs of the Department;
- Computer Laboratory (Departmental briefings);
- School of Veterinary Medicine (Department leadership);
- Drop-in sessions for all academic users;
- Entrepreneurship hub (Cambridge Enterprise and ideaSpace, currently located at Hauser Forum);
- Existing commercial and research institutes on site (including Schlumberger Research and British Antarctic Survey)

4.1.9 In consulting the stakeholders, the team has analysed relevant best practice case studies to facilitate the discussion and explore alternative solutions to functional requirements.

Market assessment

4.1.10 An assessment of the market for commercial R&D floorspace at West Cambridge has identified the potential for significant demand and pace of market absorption, anticipating a 15-25 year build out period for the commercial R&D floorspace on the site. The assessment has emphasised the benefits for research activity related to physical sciences and technology and a need to provide a range of work spaces, varying in size and support services.

The recommended range includes:

- embedded industry collaboration teams within faculty;
- small scale entrepreneurship space;
- innovation and incubator space;
- grow on space to enable SME's and others to develop from other space or secure a presence on site;
- major industry research and technology occupiers, looking for buildings or space within flexible, high quality buildings, typically between 3,000 and 10,000m².

4.1.11 Market assessment and industry research benchmarking have also provided input about requirements related to the overall research environment such as overall size (critical mass), transport infrastructure, desired amenities and open space qualities.

Community and placemaking requirements

4.1.12 To adequately respond to this aspect of the masterplan, the team has consulted users on site-wide related issues such as promotion of interaction and collaboration, attitudes to sharing of facilities, open space preferences, cycling and cycle parking, etc. These and individual users' requirements were collated to assess opportunities for site-wide strategies. Together with best practice case studies, these insights were used to establish principles for site-wide community and placemaking.

Development Objectives

4.1.13 In summary the proposals for West Cambridge need to:

- Accommodate a new **Cavendish III Laboratory** – this is a priority project which demonstrates future needs and issues and has potential to act as a catalyst for change. The building brief for the new Cavendish includes significant area requirements (to replace the existing provision in adequate accommodation and allow for growth), adjacencies and onerous technical requirements, including servicing and access;
- Accommodate buildings for a move and integration of **Department of Engineering**, in a phased manner;
- Accommodate space requirements for growth and for location of the **Physical Sciences and Technology Campus** (in general);
- Establish an **innovation and collaboration ecosystem** - which will introduce commercial spaces at different scales alongside the academic uses – blended together throughout the site. The aim of this range is to cater not only for established businesses but also to support entrepreneurship by providing smaller units on shorter leases and business support;
- Facilitate **formal and informal interaction** between users and establish a West Cambridge community – there is a need for the transformation of the quality of place for users through new public realm, social spaces and shared facilities;
- **Plan for flexibility** to accommodate future changes in University and commercial research and collaboration requirements;
- Ensure **servicing and other technical requirements** are met in a safe and efficient way.

Sustainability strategy

4.1.14 The University has an aspiration to make West Cambridge a genuinely sustainable academic and commercial research community. Two of the key drivers for the masterplanning of West Cambridge are major sustainability themes:

- to substantially improve the social realm across West Cambridge and hence increase the well-being of those working on the site;
- to improve pedestrian and cycle access to the site and to radically improve public transport provision so as to be able to build on the existing car-parks, densifying the site and making it more attractive to cyclists and pedestrians.

4.1.15 The development of the proposals has been informed by a Sustainability Assessment Matrix (SAM). This provides a bespoke sustainability assessment method as encouraged in the Cambridge City Council Draft Local Plan 2014. This SAM has helped to achieve optimal designs, within an overarching framework for the entire site.

4.1.16 The key drivers for the sustainability framework at West Cambridge, as reflected in the use of the SAM, are:

- To enable sustainability considerations to inform the development of the Masterplan and the selection of a preferred option;
- To ensure sustainability is taken into account early on so that opportunities are not missed;
- To address issues which the project team feel are of most relevance to the development of the site;
- To build on the innovative sustainability approach adopted for other University Estate's Masterplans and developments;
- To develop a mechanism which provides a greater incentive for action than existing schemes such as BREEAM (Building Research Establishment Environmental Assessment Method), recognising and valuing action, rather than promoting a criteria-driven approach;
- To demonstrate to the City Council planners that sustainability has been taken into account in a transparent way in compliance with the Draft Local Plan.

4.1.17 The SAM framework has been created taking the best features from existing rating schemes such as BREEAM Communities, BREEAM New Buildings, and CEEQUAL, as well as in response to local and national policies such as the National Planning Policy Framework (NPPF), the GLA's Supplementary Planning Guide regarding Sustainable Design and Construction, the Cambridge Local Plan 2006, the Cambridge Draft Local Plan 2014, the Cambridge Sustainable Development Supplementary Planning Guide, and the University of Cambridge's policies.

4.1.18 The framework includes 12 Sustainability Principles, grouped under four categories:

1. Resources and Climate Change:

- **Energy and Climate Change:** including an innovative low carbon energy supply strategy, minimising future energy demand, addressing greenhouses gases and adopting a climate change adaptation strategy;
- **Water:** related to flood risk, surface water management, and overall water use;
- **Materials and Waste:** promoting reuse of buildings and materials, responsible materials sourcing, minimising use of materials and waste generation, and reduction of operational waste.

2. Transport and Local Connectivity

- **Transport and Mobility:** developing a Sustainable Transport Strategy and promoting access to public transport modes, maximising uptake of walking and cycling, and reducing car use.

3. People's Health, Social and Economic Wellbeing

- **Health and Wellbeing:** related to high quality internal environment, facilities and amenities and secure, pleasant and attractive external spaces for both occupants and visitors;
- **Collaboration and Inclusion:** including consultation during design and post construction stages, designs which encourage collaboration through shared facilities and design for inclusion of all specialist needs.
- **Education and Knowledge Transfer:** incorporating innovative practices within the redevelopment, making use of University experience and research skills, supporting continual learning through monitoring and engagement with site users.
- **Employment Opportunities:** such as supporting the development of new skills, jobs, and local employment during the construction phases and promotion of local employment and training arrangements

4. Land Use, Ecology and Local Impact

- **Biodiversity and Ecology:** maintaining features of importance and enhancing levels of biodiversity and ecology.
- **Pollution and Local Environment:** mitigating all potential sources of pollution, limiting local environmental impact from construction and establishing operational procedures to prevent future pollution and adverse local impacts.
- **Reputation, Heritage and the City:** including delivery of Signature Sustainable buildings as part of the redevelopment and celebration/promotion of innovative measures and sustainable infrastructure for occupants and visitors to see and explore.

Sustainable Transport Strategy

4.1.19 The University is promoting a wide-ranging, balanced, sustainable transport strategy that includes the following measures:

- the delivery of a strong, development-wide, travel demand strategy to existing and future users of the site;
- provision of high quality pedestrian and cycle infrastructure both to, and across the site, reducing existing severance. Of particular interest is the provision of improved cycle routes into the City, with additional priority measures across busy roads;
- delivery of a high quality, regular and accessible bus service to popular destinations, including new links to the rail station;
- new and enhanced, appropriately sized, site access points, fitted with selected vehicle detection to maintain the existing highway capacity and provide priority for pedestrians, cyclists and buses; and
- provision of sufficient car parking places around the periphery of West Cambridge to minimise car movement within the site, and the implementation of a car parking management strategy.

4.1.20 These measures will both manage the car-borne impact of the Development on the surrounding transport network, and protect the quality and amenity of West Cambridge for all occupiers.

Development strategy

4.1.21 The requirement for a comprehensive, site-wide development strategy at West Cambridge has emerged in response to the need to establish a more flexible framework for the delivery of priority capital plan projects and to find more effective and sustainable ways of improving conditions for both existing and future academic research and partner commercial research communities. The work to establish the University need and inform the development of the proposals has considered:

- **University strategic brief:** based on the University's strategic objectives and estate-wide strategy and the role West Cambridge, clustered with North West Cambridge Development, is best suited to take;
- **University's sustainability commitments:** and opportunities that West Cambridge brings in achieving the estate wide targets;
- **Needs of current and known future occupiers:** particularly requirements of the priority project Cavendish III Laboratory, Department of Engineering and generic academic and commercial occupiers; as well as requirements for supporting and social facilities;
- **Benchmarking:** which considers opportunities against relevant precedents, including MIT and Stanford, ETH Zurich and TU Delft, Imperial West and Chiswick Park in London, reflecting on what others are achieving and planning for. Benchmarking considers types of commercial research demand, knowledge transfer initiatives and how these are brought together successfully with academic research and teaching space; critical mass and the influence of scale of populations on transport, social infrastructure and place-making practices, relative to locations;
- **Background analysis and site context:** (in Section A2 of this document) this collects information about the current state of the site, strengths and weaknesses, including spatial analysis and a detailed review of the town planning and transport contexts;
- **Market demand:** for commercial research and financial and reputational benefits of collaboration;
- Opportunities to help establish the **long term vision for transformation** and development of the site, based on an understanding of the whole site potential;
- **Capacity and constraints on development:** which describes limitations to the current transport network and possible transport improvements and so inform consideration of options, on a phase by phase basis.

4.1.22 West Cambridge responds to the University's needs by providing opportunities to:

- Create a high quality, well connected built environment, helping to attract and retain the very best research and teaching teams;
- Provide more flexible, efficient space for University use;
- Enhance connectivity both within and outwards from the University;
- Support the commercialisation of knowledge through entrepreneurship and through collaboration with industry;
- Maintain the University's globally competitive position, as its peers deliver high quality environments for research and collaboration on a similar basis;
- Improve financial returns on investment;
- Deliver shared facilities and spaces and places for social interaction in an economically sustainable manner.

4.1.23 On a corollary basis, there are significant risks associated with further piecemeal development at West Cambridge. Without a comprehensive development strategy and flowing from that, a new masterplan to make the most of the potential for the whole 66ha site, there are risks that include: running out of capacity for academic faculty growth; losing the opportunity for co-location with industry; failure to secure social amenity space on a cost efficient basis; and fewer opportunities for the University to compete in accommodating research institutes and to secure grants for research, in future.

4.1.24 However, considering the potential at West Cambridge in combination with the land available for academic and commercial research floor space at North West Cambridge, there is now the opportunity to plan for the future with the benefit of a substantial supply of available land, perhaps for the first time in the University's history.



133. West Cambridge Illustrative Masterplan within wider local context (including the North West Cambridge Development) - view from north

4.2. Design response

Strategic response

4.2.1 Given the changing context around Cambridge, the future City Deal and growing success at Addenbrookes and elsewhere, the potential exists to transform the West Cambridge site from a relatively isolated, edge of city campus, into an integrated part of the city, with a stronger character and better strategic transport connections.

High level distribution of uses

4.2.2 As a new vision is considered, the academic and commercial research clusters at West and North West Cambridge have the potential, over time, to grow and develop into a major academic research and teaching environment. From internal consultation it is clear that many wish to preserve an academic character and limit the scale of commercial activity within it. This objective can be met in a plan that seeks to develop an academic led environment at the east, with commercial research concentrated at the west. In neither cluster will the use be purely for one activity but differentiation of each cluster will be important.

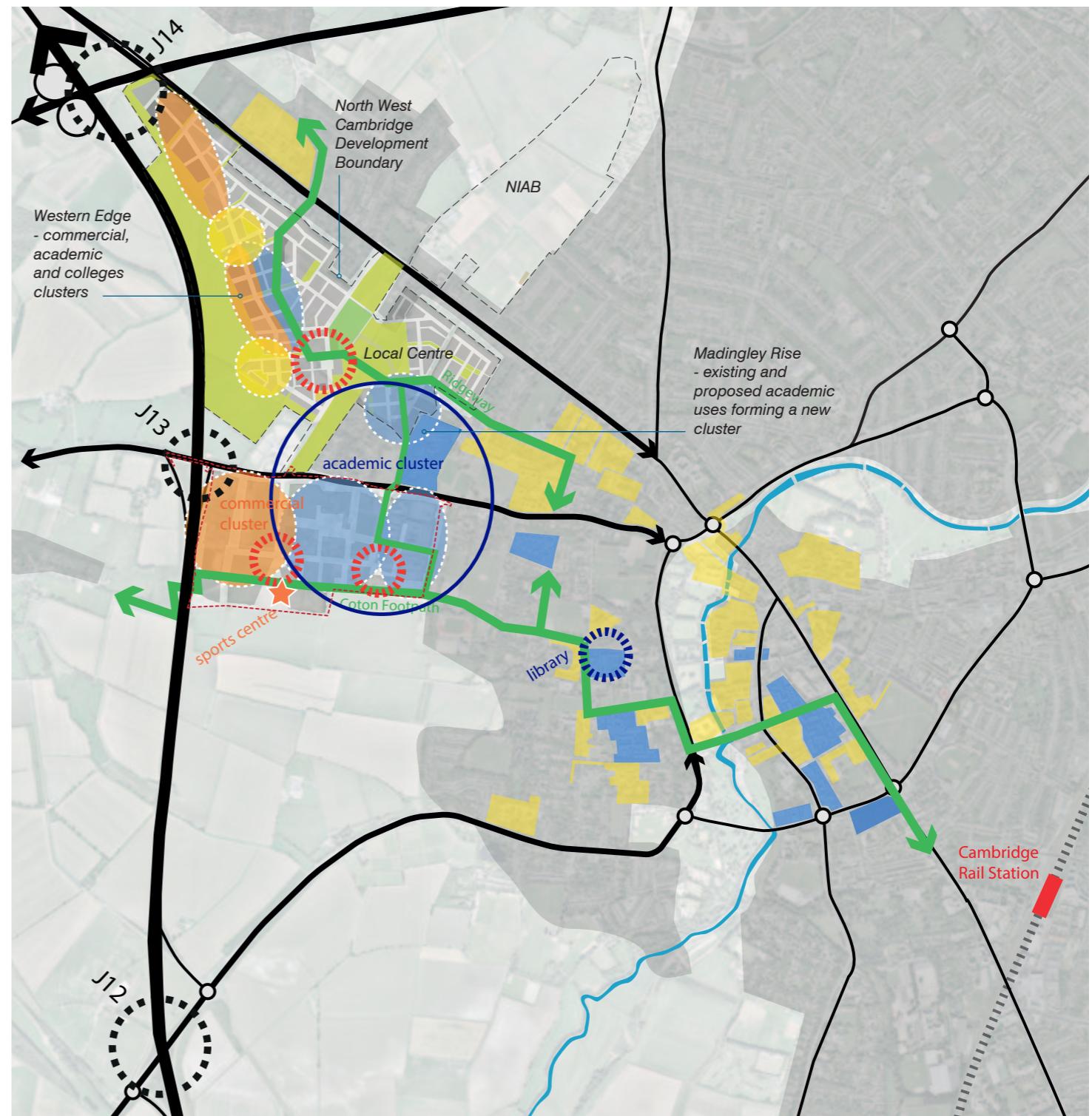
4.2.3 Locating additional academic uses at West Cambridge reinforces existing uses north and south of Madingley Road and forms the opportunity for a greater University quarter within the city. A new academic-led cluster will link with existing academic uses at Madingley Rise (Astrophysics, Earth Sciences) and establish a concentration of physical sciences and technology, answering the University's needs.

4.2.4 In the west, a Commercial-led cluster can be formed, continuing the commercial clusters along the proposed Western Edge within NWCD. These uses will be highly accessible from the M11. Proposed commercial development within West Cambridge will reinforce those already located within the site, forming a concentration that can constitute a commercial address of scale.

4.2.5 The co-location of academic and commercial research provides an opportunity to foster stronger links between the two and establish the base for University's closer collaboration with industry. The experience from world leading research Universities such as Stanford and MIT, testifies to the economic and reputational benefits that such arrangement can bring to both universities and cities.

4.2.6 Beyond planning for businesses to be accommodated on the site, the University understands it is important that facilities and 'soft infrastructure' (management) can be delivered in a way that encourages research and commercial R&D growth through collaboration.

4.2.7 As seen in the cases of TU Delft and MIT, arrangements of co-located but distinct clusters are the preferred relationship: identity is maintained and interaction is facilitated through free and easy movement of staff and sharing of facilities. Such proximity brings considerable benefit to both communities.



134. Strategic land use - creating academic and commercial clusters in the west of the city

KEY

- Commercial (Orange)
- University uses (Blue)
- Colleges (Yellow)

- Strategic cycle network (Green arrow)
- Activity nodes (Red symbol)

Improving connections and a step change in access

4.2.8 To achieve the potential of the site, improved connectivity and a step change in sustainable transport accessibility will be essential for transformation of the site. This will encourage the reduction in the proportion of people accessing the site by car, encouraging a modal shift and the transition from a car-oriented environment to public transport, cycle and pedestrian prioritisation. Crossing points on Madingley Road will enable closer interaction between the two University sites. West Cambridge is within 10-15 minutes cycling distance from the City Centre, 25 minutes from Addenbrooke's. The proposed transport strategy aims to make the most of this proximity and also of wider transport improvement plans considered for this compact, evolving city.

4.2.9 Section 4 of the Transport Assessment summarises existing national and local policy, guidance and emerging strategies and provides an assessment of the performance of the proposed development against these policies. A detailed summary is included in Appendix 4.1 of the TA. The following documents were reviewed:

National Policy Guidance

- National Planning Policy Framework (NPPF);
- Planning Practice Guidance;
- Circular 02/2013 'Strategic Road Network and the Delivery of Sustainable Transport';

Local Policy and Guidance

- Cambridge Draft Local Plan 2014;
- Greater Cambridge City Deal;

Local Transport Policy and Guidance

- Cambridgeshire Local Transport Plan 2011-2026; and
- Transport Strategy for Cambridge / South Cambridgeshire

4.2.10 It concludes that the Development accords well with national transport policy and guidance to deliver sustainable development:

- its sustainable location within Cambridge, and the incorporation of employment well located adjacent to residential land-uses reducing the need to travel - supporting the stated aspirations and objectives of paragraph 34 of the National Planning Policy Framework; and

- by promoting ways to reduce the traffic impact of this development and the University's other activities within Cambridge, and by "managing down" traffic generation, the Development supports the policy of the Department for Transport's Circular 02/2013.

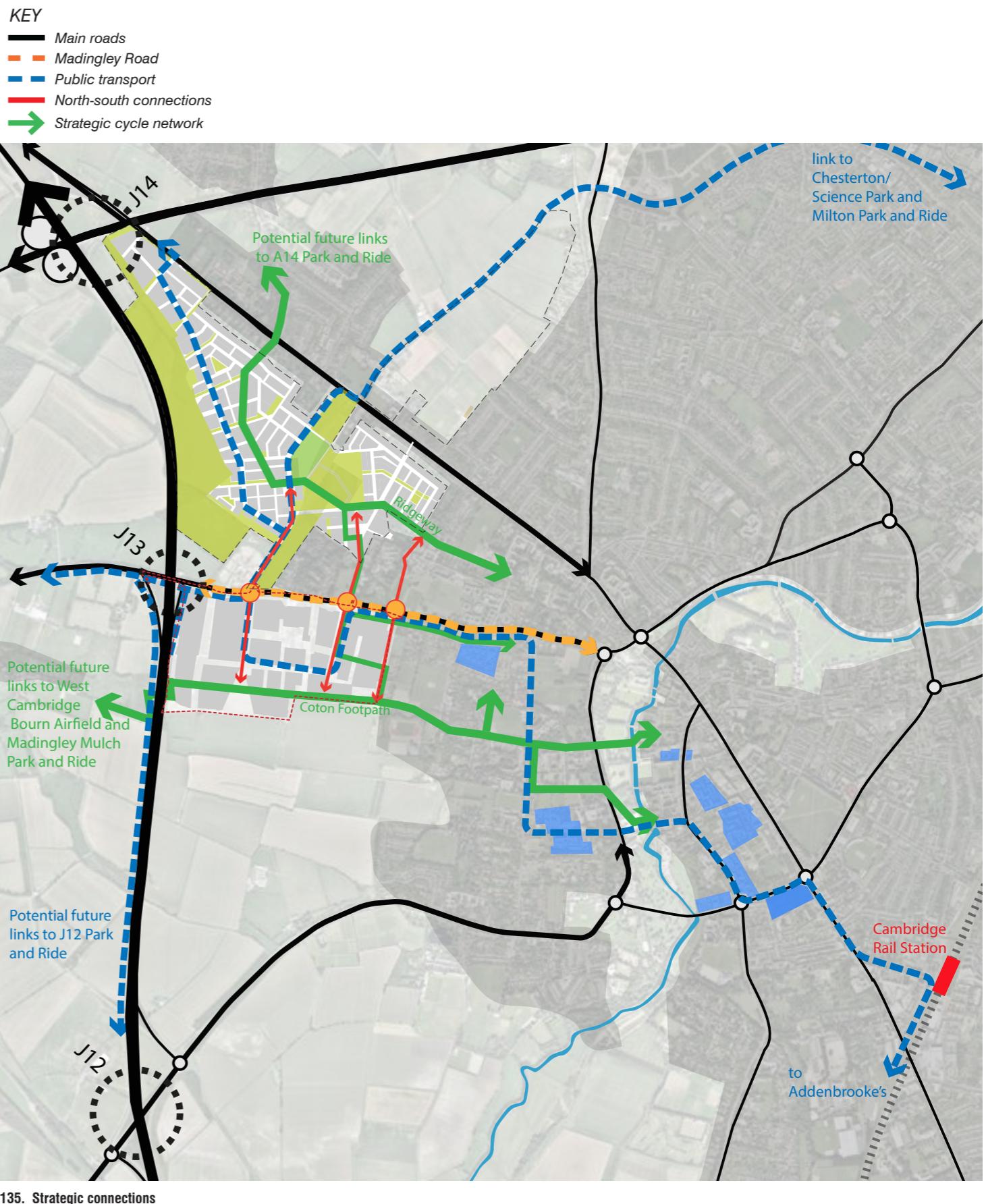
4.2.11 The Development also accords with important local transport and planning policy requirements:

- of Policy 18 of the Cambridge Draft Local Plan - by including a comprehensive transport strategy for the site, incorporating a sustainable transport plan to minimise reliance on private cars – including an assessment of the level, form and type of car parking on the site, as well as enhancing links for walking, cycling and public transport links (including access for all) to the city centre, railway station(s), other principal educational and employment sites, and other key locations within the city to support sustainable development;
- by improving the local footpath and cycleway network as an integral part of a wider transport system – thus improving access to the surrounding countryside – according with the Cambridgeshire Rights of Way Improvement Plan; and
- of the measures identified within the Cambridge Long-Term Transport Strategy, the public transport strategy would deliver enhanced public transport services.

4.2.12 This identifies that the Development accords well with national and regional transport policy and guidance to deliver sustainable development, as well as with the key local transport and planning policy objectives. It shows that, overall, the proposals for the Development, and the transport strategy evolving to support it, will make a substantial and significant contribution to sustainable development objectives and policies for the Cambridge area.

4.2.13 The Transport Assessment identifies the transport strategy and travel demand management measures to ensure that the Site will be developed in accordance with national and local policy, as well as the broad long-term strategy for the development of Cambridge as set out in the local planning documentation.

4.2.14 Overall, the proposals for the Development, and the transport strategy evolving to support it, will make a substantial and significant contribution to the achievement of sustainable development objectives and policies for the Cambridge area.



4.2.15 The overall transport strategy for the Development responds to a number of important national, regional and local objectives, which may be summarised as follows:

- providing Development components, Development layout and disposition of uses designed from the outset to be inherently sustainable, pedestrian and cyclist friendly, being based upon the provision of an integrated transport system as well as minimising the distance to travel overall;
- encouraging the use of sustainable forms of transport such as walking, cycling, and public transport, thus reducing the dependency on the motor vehicle;
- minimising the traffic impact of the Development;
- assisting in reducing the number and severity of personal injury collisions on the local roads;
- integrating the Development proposals with the wider existing and proposed transport network;
- reducing “greenhouse gas” vehicle emissions; and
- implementing a Travel Plan / Travel Demand Management strategy for the development.

4.2.16 The specific elements of this Development Access and Movement Strategy are considered individually in the following sections of the TA:

- Section 6 – Pedestrian and Cycle Strategy;
- Section 7 – Public Transport Strategy;
- Section 8 – Car Parking Provision, Vehicular Access and Site Layout;
- Section 9 – Travel Demand Management Strategy;
- Section 10 – Construction Access Strategy.

Cycling

4.2.17 The Cycling Strategy was derived following:

- a series of workshops with the West and North West Cambridge Cycling Group, a community group set up to seek local information relating to existing operational issues;
- an initial response from the Cambridge Cycling Campaign;
- a review of existing Cycle movement data – including the Strava Heatmap, and an analysis of home postcode information for existing occupants of West Cambridge, as provided by the University; and
- further meetings with the Highway and Cycling Officers of Cambridge City and Cambridgeshire County Councils.

4.2.18 The Cycling Strategy proposes changes to the wider network of routes to:

- improve the existing good permeability through West Cambridge;
- strengthen links between West Cambridge and the adjacent North West Cambridge;
- improve access to the surrounding area, including to the City Centre.

4.2.19 The cycling infrastructure proposals for West Cambridge would:

- deliver quality cycle and pedestrian connectivity throughout the site;
- enhance pedestrian and cyclist safety off-site for both users of West Cambridge, and for all other pedestrians and cyclists;
- deliver improved strategic connections to key local destinations - such as the residential, employment and retail offer at North West Cambridge, and the residential development at Darwin Green, as well as towards the facilities within the City;
- significantly enhance the existing pedestrian and cycle provision to the surrounding area by providing and improving direct routes across the site and along Clerk Maxwell Road; and
- overall, preserve and enhance the attraction of walking and cycling as modes of travel.

Public Transport

4.2.20 Initial discussions have also been held with various stakeholders to agree the potential public transport strategy for the Site, including with:

- the Traffic Managers of the main local bus operators – Stagecoach Cambridge and Go Whippet; and
- the County Council’s Public Transport officers.

4.2.21 The scale of the proposed Development means that there will be both a high quantum of demand for public transport, and a number of locations that will need to be connected to West Cambridge. New and enhanced bus services will be phased in to align with the development quantum and consequent growth in demand. The links are derived with reference to the Travel Habit Survey undertaken in May 2015 by the University and are summarised below:

- to the local Rail Stations – to both the existing Cambridge and future Chesterton Stations;
- to the City Centre;
- to the University / NHS sites in South Cambridge - including Addenbrooke’s Hospital and the Cambridge Biomedical Campus;
- to various residential and employment / research sites around northern Cambridge - including North West Cambridge, the Darwin Green site and the Cambridge Science Park as well as to Milton Park and Ride Site.
- potentially, to residential areas along the A14 corridor - including St Ives and Huntingdon; and
- by the City Deal, to residential areas on the A428 corridor - including St Neots and the proposed Bourn Airfield proposals and West Cambourne fringe developments.

4.2.22 As such, West Cambridge Development would contribute towards additional bus services further to:

- enhance existing services to increase bus usage;
- provide quality infrastructure through the Development; and
- assist in the delivery of the Greater Cambridge City Deal aspirations.

Travel Demand Management

4.2.23 The overall broad objectives of the travel demand management strategy for the Development are:

- to reduce reliance on the private car with a long-term strategy of mode shift away from single occupancy car use;
- to build upon good urban design principles that improve the permeability of the Development for promoting walking, cycling and public transport use;
- to provide more appropriate levels of parking;
- to promote the use of car sharing where appropriate;
- to minimise costly road traffic congestion and further damage to the environment in the context of sustainable development which is consistent with Government policy; and
- to encourage a high level of community involvement in travel behaviour change initiatives.

Construction Access

4.2.24 The Construction Access strategy consists of the following main elements:

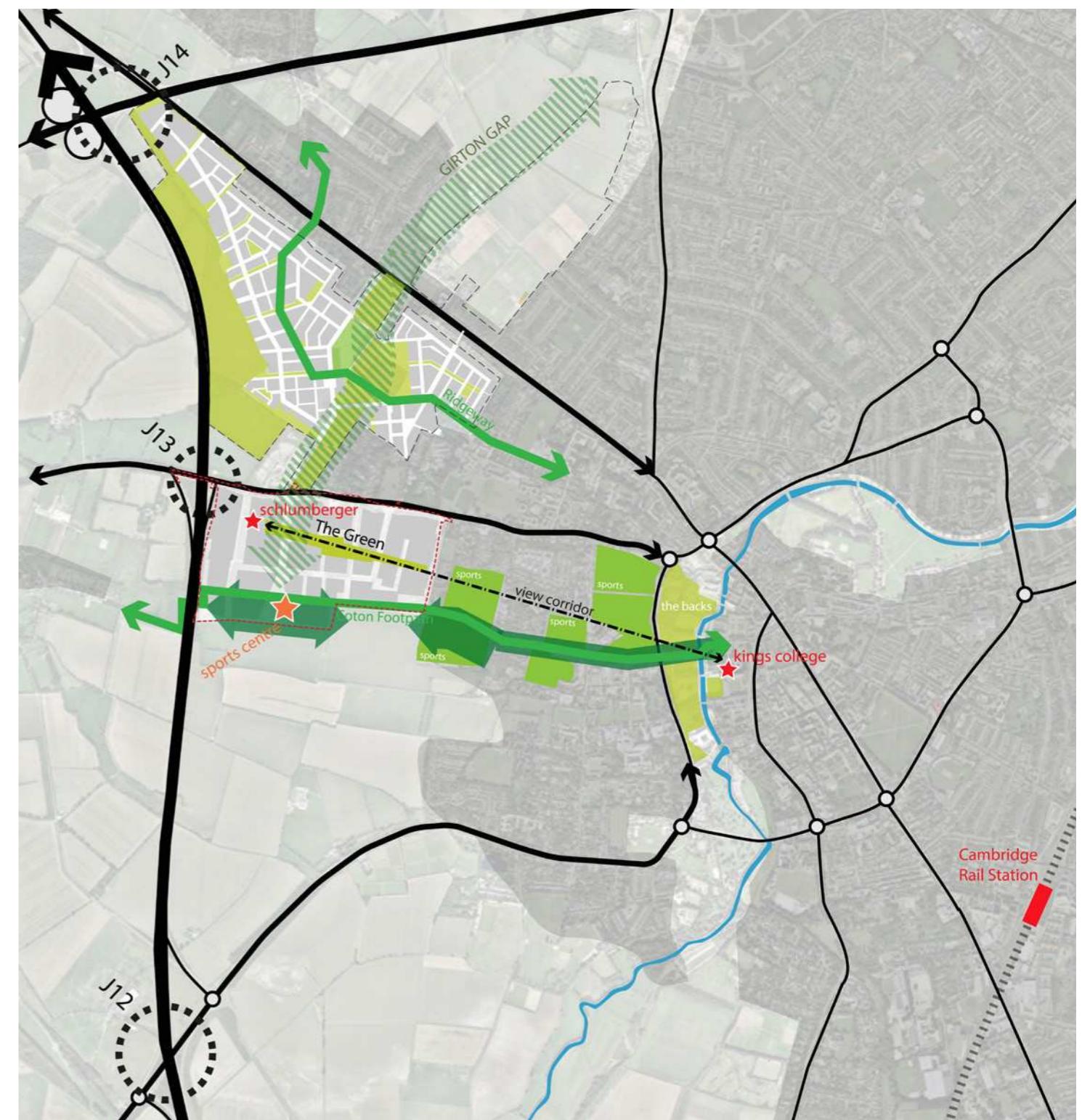
- design:
 - minimising the requirement for material to be imported or exported. For example, the movement of earthworks material off-site will be reduced to a minimum by maximising the use of raised material into the landscaping;
 - specifying materials and construction techniques that are resource-friendly;
- using locally sourced materials where possible, to reducing haulage lengths;
- managing effectively the supply of goods to construction sites - this can significantly reduce both road vehicle mileage and construction costs and wastage;
- encouraging the development of sustainable supply chains for construction materials; and
- managing the movement of workers into the development:
 - all construction sites within the Development will have comprehensive Construction Travel Plans, detailing how their workforce will travel to the Site.

Open Space network, spatial and visual integration

4.2.25 Key to the transformation of West Cambridge will be the creation of a strong landscape and open space character, with visual connections to the city centre. This must include a series of well defined new urban spaces, reinforced landscape connections and the upgrading of the existing internal street network.

4.2.26 Transformation proposals seek to create a new hierarchy of spaces through the site that will aid legibility, create a strong visual identity and form the setting for new social events and recreation that will become integral to the life of West Cambridge.

4.2.27 At a strategic level it is important for this new social and landscape setting to celebrate and rediscover key views to the city skyline and to improve the visibility of the Schlumberger Research building and its roof structure.



136. Strategic open space network and visual integration

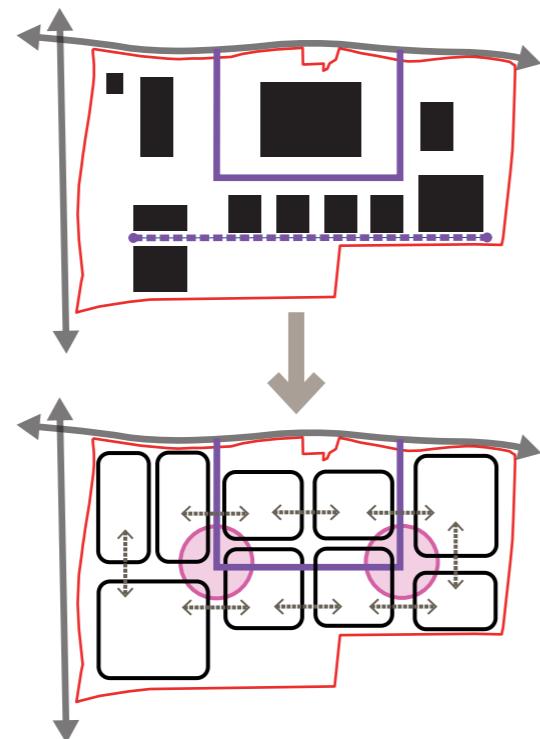
Site-wide strategies

4.2.28 Acknowledging the qualities and opportunities brought by the original masterplan and current developments, the masterplan aims to provide a framework for a gradual transformation and densification of the site. The key design concepts to guide this process are explained on the following pages and relate to a new urban and landscape integration, the creation of clusters of uses and the reinforcement of links with the surrounding areas and with the City Centre.

4.2.29 The full potential of academic and industry research communities on the site will depend on quality of place and the management's ability to truly bring them together. The transformation of the current environment requires a step change in the way the site operates, particularly in relation to car parking and amenity such as catering and usable open space. To this goal, the masterplan includes several site-wide strategies which aims to:

- create walkable character areas and a new density of development and working population;
- concentrate car parking along the edges to create pedestrian friendly public realm within the heart of the site;
- provide transport, and a user friendly cycle network and cycle parking;
- provide a sufficient amount of high quality social facilities, ensuring they are accessible and activate open spaces;
- ensure that a range of research workspaces, lease arrangements and support services are available for a broad spectrum of commercial research activity;
- through the provision of a new academic public realm connect the site together and integrate it into its surrounding urban and landscape context.

Creating character

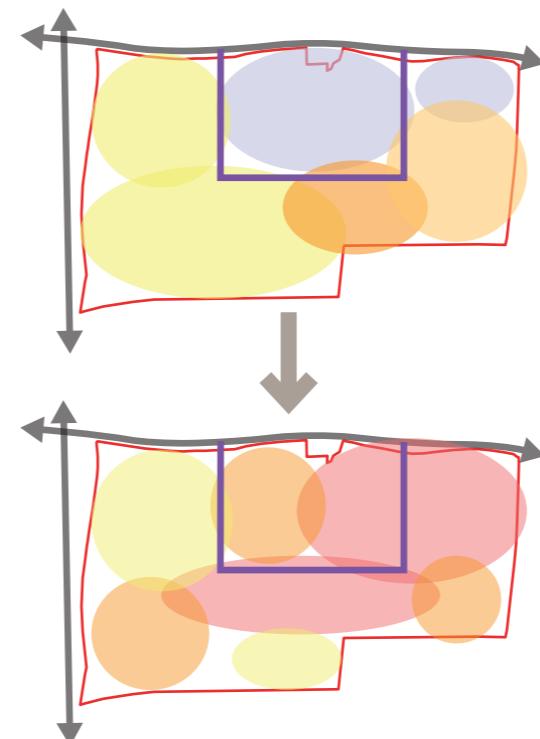


137. Site transformation: From plot by plot development to well scaled, pedestrian oriented character areas.

While many of the existing buildings at West Cambridge provide quality research space, the piecemeal development on a plot by plot basis, has in many cases resulted in detached buildings with little or no interaction with the public realm. On plot at grade car parking further exaggerates this condition.

The new strategy is to develop the site on the basis of character areas - well scaled, pedestrian oriented complexes of buildings and open spaces. This approach will allow for gradual delivery of the masterplan in a way that delivers visible benefits (buildings, open spaces and other amenities) at any stage of the process.

Density and achieving critical mass

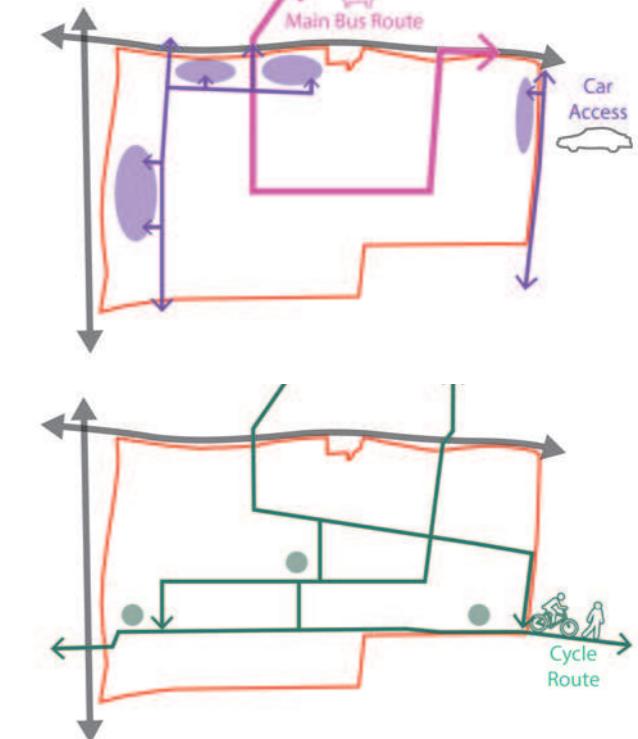


138. Site transformation: A new density and critical mass.

The existing consented masterplan did not achieve higher densities in part because of the remaining existing uses such as the Veterinary School and the Cavendish Laboratory remaining on site and partly to do with the strategy of plot by plot development with surface car parking. With the potential to relocate the Veterinary School off-site and decision to rebuild the Cavendish Laboratory elsewhere on-site there is an opportunity now to achieve a more coherent strategy for density across the whole site.

This refresh of the masterplan takes this opportunity to increase the density of the site and create critical mass in key locations, which will promote new levels of activity on-site, support social facilities and public transport and activate key public realm. A density profile has been carefully controlled to respond to the locations of key spaces within the masterplan and to respond to sensitive edges around the site.

Reducing car dependency: Public transport, cycling and car parking strategy

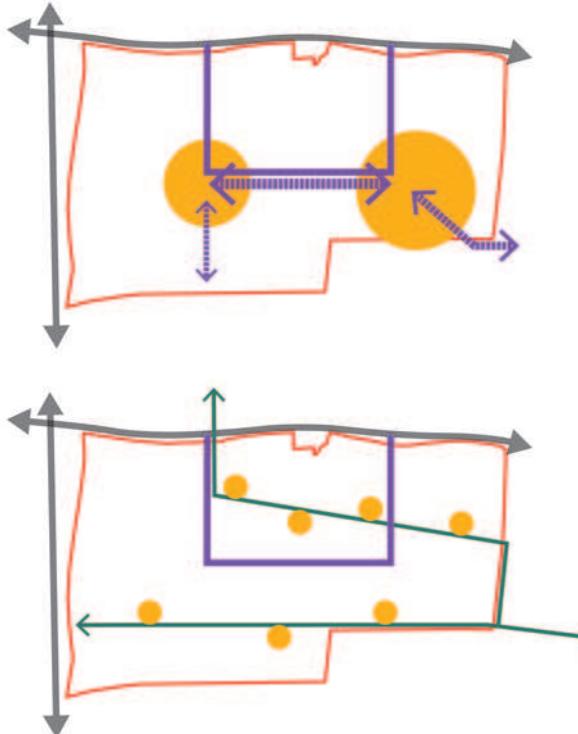


139. Site transformation: From vehicular orientated environment to promotion of public transport and cycling. Car parking concentrated and located to edge of site.

The character area approach will be made possible through the elimination of at-grade car parks through a step change in the transport strategy for the site: the new travel plan will include measures for gradual reduction in car use, friendlier cycling, walkability and distribution of car parking.

Key to realising the full value of the land available at West Cambridge will be the rationalisation of surface car parks into multi-storey, centrally managed facilities under University control. This will allow for increased parking capacity at key locations within the site and a shift from a 'drive to building' to a 'park & walk' mentality, through establishing attractive well defined pedestrian-orientated environments. The University will be able to manage down the proportion of car users carefully between academic and commercial users as public transport access is improved and population and density increases.

Innovation and Collaboration: Shared facilities

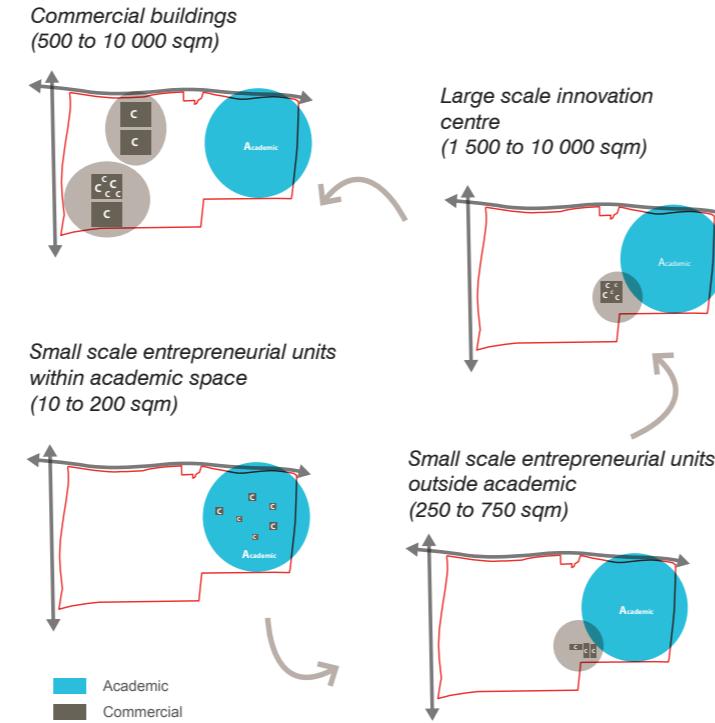


140. Site transformation: Reinforce the Forums by locating larger social facilities here. Additional smaller facilities located to provide activity within other spaces.

Part of the efforts to promote Innovation and Collaboration are the mixing and blending of the various land uses and the provision of new open spaces with associated new social facilities.

On one level, the reinforcement of the two Forums will include the location of larger social facilities and an increase in footfall through densification and the establishment of new pedestrian and cycle links. A secondary layer of social spaces will support the remaining open space network ensuring that open spaces are animated by activity.

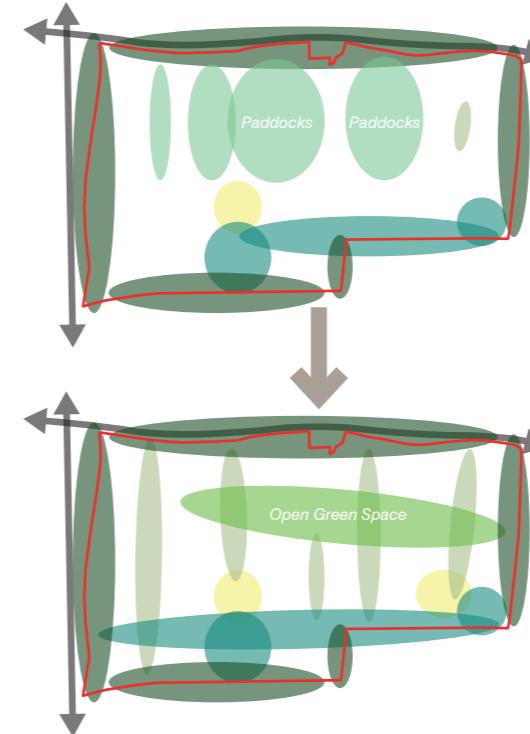
Innovation and Collaboration: Ecosystem of workspaces



141. Site transformation: Creating an Eco-system of Workspaces

Innovation and Collaboration is also to be supported by a range of commercial research spaces, varying from small start ups to established businesses. Such a mix will support entrepreneurial activities and commercialisation of knowledge: providing space for companies collaborating on research projects, flexible space and business and legal advice for start ups and larger space for businesses.

A new public open space network - an Academic Public Realm



142. Site transformation: From private, grazing paddocks to a new public open space network - an Academic Public Realm

The overall open space concept is a cohesive series of elements that form a landscape strategy that responds to place, character and the evolving masterplan.

The strategy is to transform the landscape character of the site through enhancing existing spaces and streets, forming clear north-south pedestrian Green Links and establishing new major spaces within the site. These are woven together to form a continuous network of spaces that connects the site to its surroundings while firmly knitting the site together.

A new major space can be established within the centre of the site providing a view corridor and new setting for the Schlumberger Research Building. The Southern Ecological Corridor is extended to the west, and forms a substantial element in the overall network of landscape and connections to the city, and promotes diversity and species rich habitats. The existing woodland edges will be retained and reinforced to enhance the character of the site and ameliorate visual impact of new development on the surrounding countryside.

Key opportunities for transformation

4.2.30 West Cambridge has an established spatial structure and a large number of buildings, mostly developed based on the existing consented masterplan.

4.2.31 The requirement to develop a new design framework for the site has emerged in response to the need to improve site conditions for existing and future occupiers as well as in response to the opportunities brought by the changed circumstances in both the wider context and on the site itself.

4.2.32 On the site, the need for a new Cavendish Laboratory building and release of its current site, together with the University's decision to explore relocation of the Veterinary School have created an opportunity to develop a comprehensive site plan, after both of these sites have been excluded from the previous masterplan and its revisions.

4.2.33 This comprehensive strategy will create an opportunity for the University to secure much needed space for further academic growth and make the most of the potential of the 66ha site. With better public transport links, more efficient site layout and appropriate density, the overall amount of development can be significantly increased. The intensified use and population on the site can in turn support public transport and much needed social facilities on the site.

4.2.34 As one of the University's key development sites free from the spatial constraints of the historic core, West Cambridge can provide plots of size and flexibility, suitable for high quality research buildings. It can now provide the amount of development required for large academic occupiers and a critical mass of floor space to establish a commercial research address of national importance.

Unlocking the potential for east-west integration



143. Relocation of Veterinary School

Currently, the Veterinary School buildings and its large, fenced off paddocks, form an impermeable centre to the site, limiting the connections and views across the site. The relocation of the Veterinary School creates an opportunity to redevelop the core of the site and establish a new major open space which can visually unify the site and add another east-west connection.



144. Large Serviced Plots to the west of the site

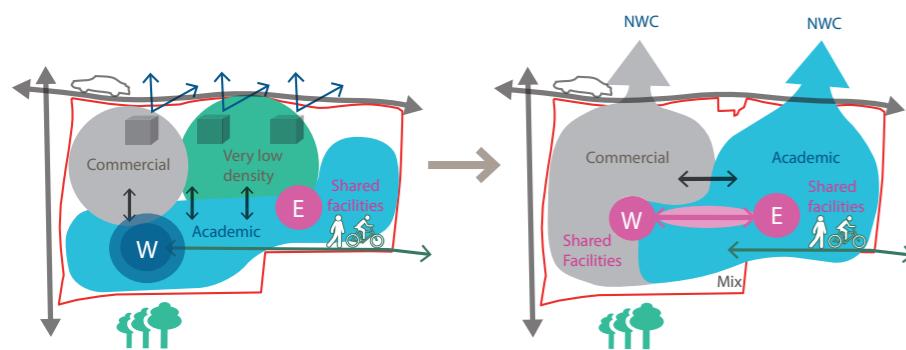
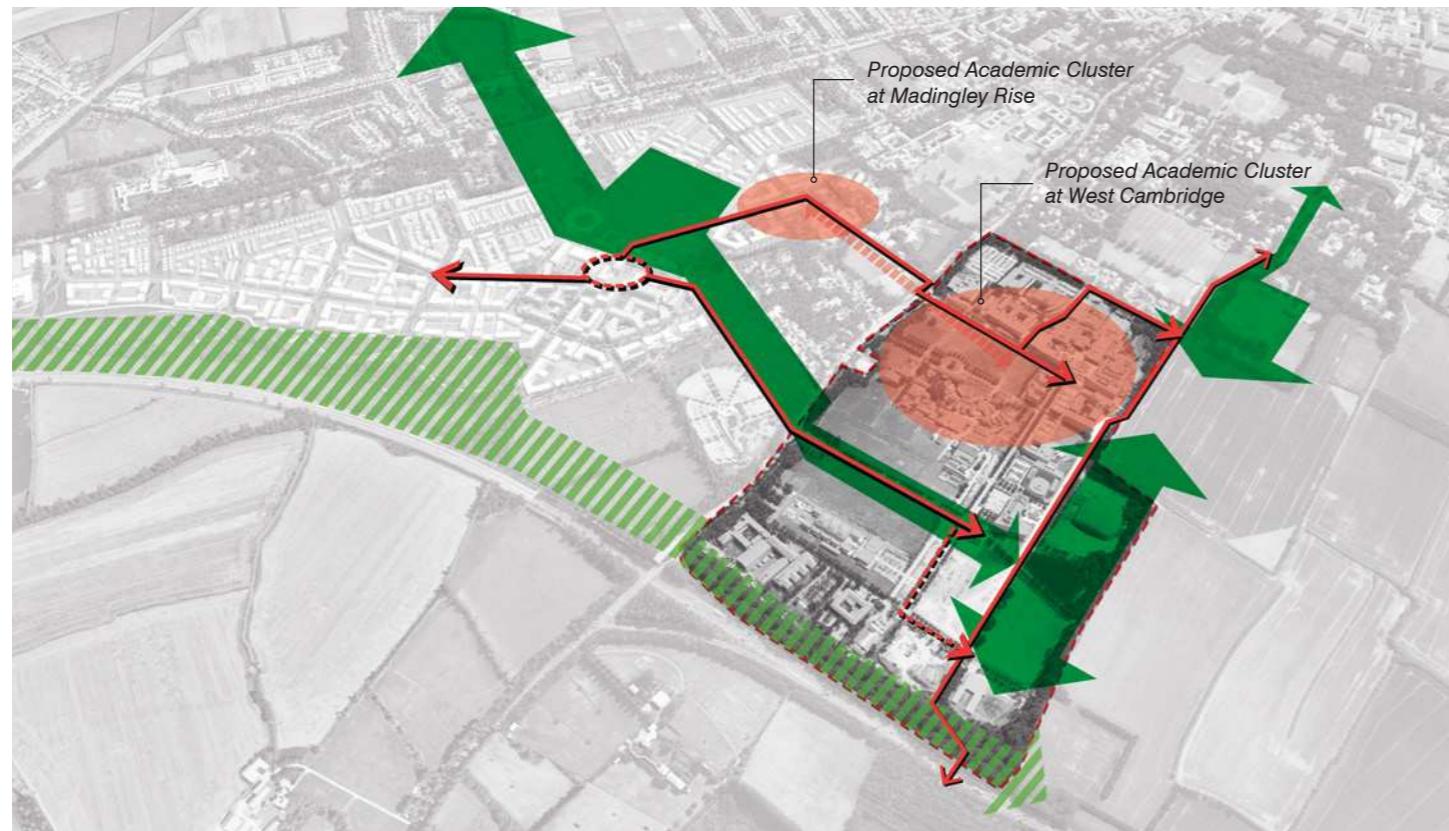
The existing masterplan earmarked this area for a large academic occupier. However, the considered Departments had concerns about its remoteness and isolation and sought other options. Currently, these large plots are empty but serviced and ready to be developed. There is an opportunity to immediately locate commercial research space here and, together with Schlumberger, BAS and Aveva, grow a western cluster of industry partner research with West Forum and lakeside address.



145. Redevelopment of the Cavendish site to the east

The relocation of existing Cavendish Laboratory will free the south eastern corner of the site, closest to the city centre, and enable the creation of new arrival spaces adjacent to the Coton Footpath. The large plots thus formed will be well suited to accommodate significant provision of shared facilities to draw users and generate activity around East Forum.

Urban integration and clusters of uses



146. Site transformation: From east-west distribution to north-south interaction

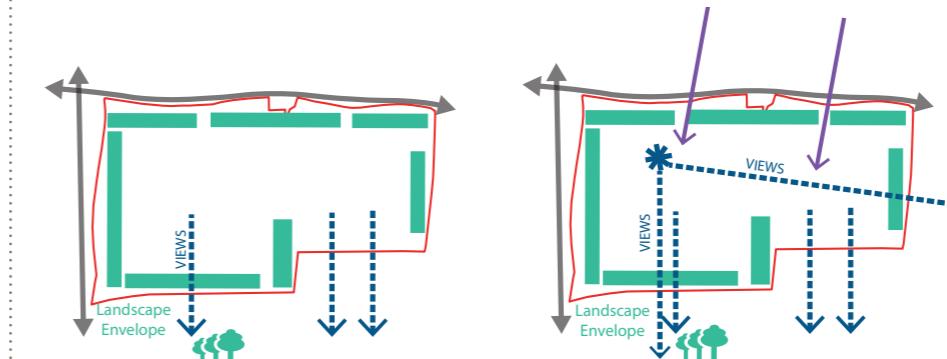
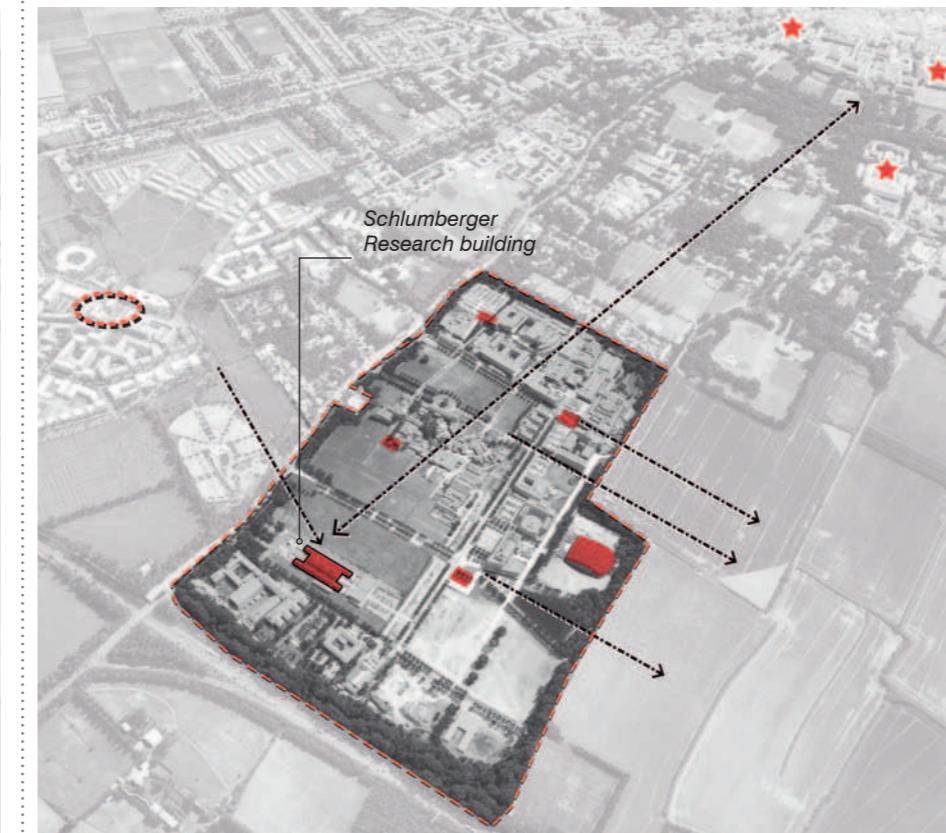
West Cambridge together with the North West Cambridge Development can be considered as a whole new urban district for Cambridge, complementing each other in uses and types of spaces. A new distribution of uses will seek to ensure that the two sites will complement and sustain each other. By focusing academic uses to the east around East Forum, while allowing sites to the west to form a new commercial focus around West Forum.

Strong north-south links can be formed to ensure

connections between West Forum and the Local Centre in North West Cambridge Development and providing links between university work places and university housing.

North-south spaces within the North West Cambridge Development can be visually drawn through the site to provide a new seamless development structure covering both sites.

Skyline: Key views and accents

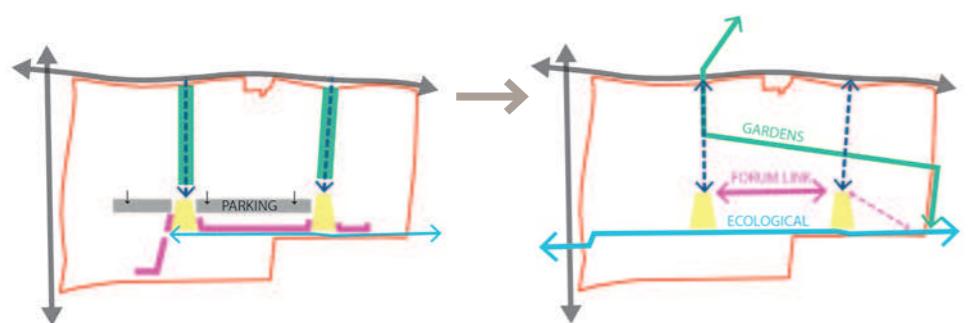
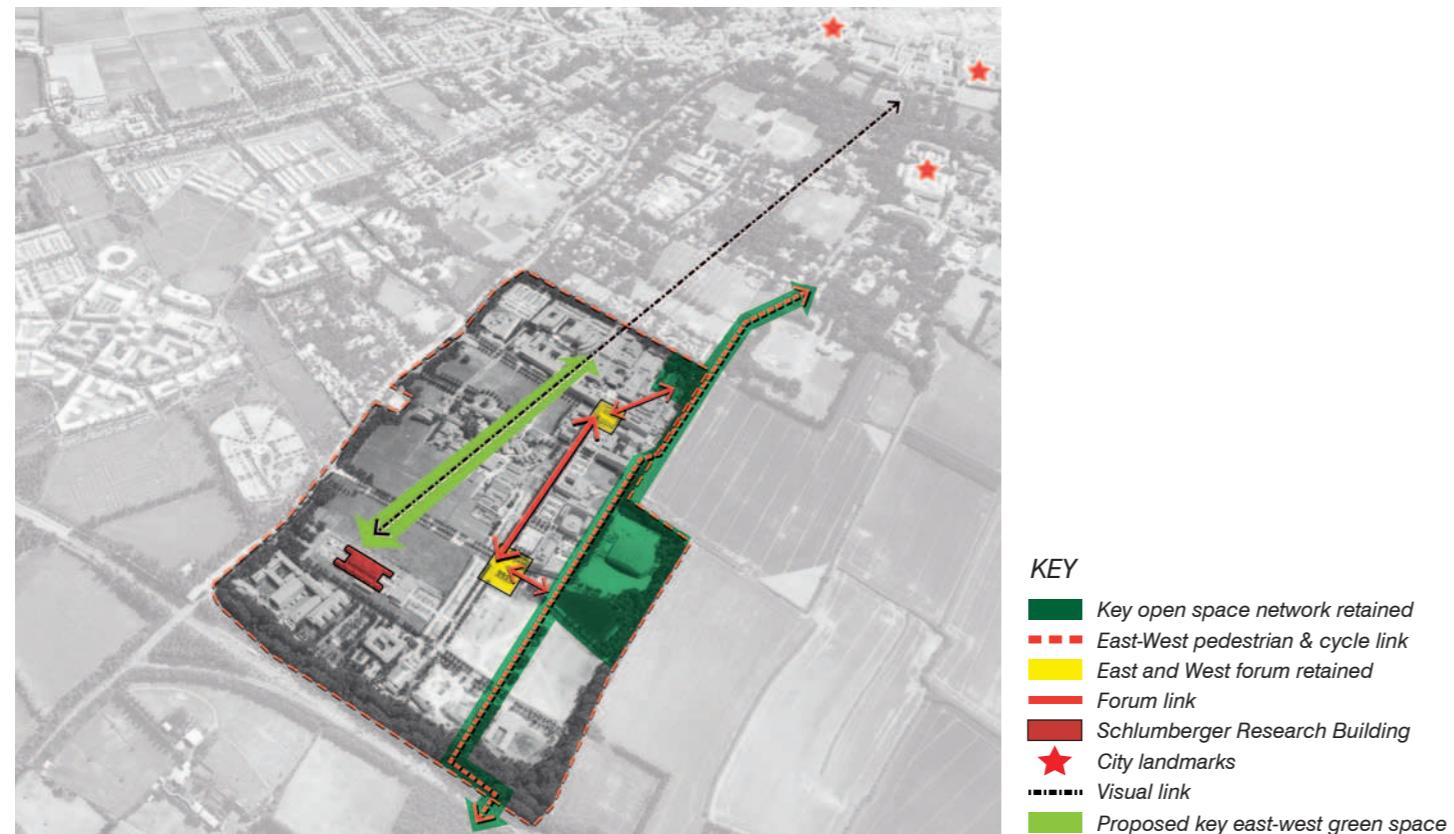


147. Site Transformation: From relative isolation to urban and spatial integration

As part of the strategy to integrate West Cambridge with the City, the proposals include concepts that emphasise and celebrate key views to the City centre skyline: Kings College Chapel and the University Library. Views from within the site to the open countryside to the south are equally retained and emphasised to ensure that the site recognises its setting at the edge of the City.

The Listed Schlumberger Research Building is the key landmark for the site, and will form the visual termination for a new key view axis and is joined by new building accents to create the new West Cambridge skyline. This approach seeks to create visible identity but also to aid legibility to the open space network.

Building on the existing consented masterplan



148. Site transformation: From reliance on Southern Colonnade to integration across the site

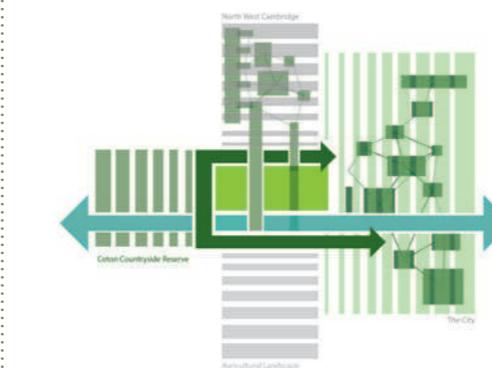
4.2.35 The new masterplan aims to build on the existing elements of the site, strengthening their role while gradually complementing them with new elements.

4.2.36 In the existing plan, the East and West Forums are the key focal points, connected by the Coton Footpath/ Southern Ecological Corridor. As a result, although it is one of primary access routes through the site, Charles Babbage Road is lined with at grade car parks with building frontages set back from the road.

4.2.37 The new proposal retains the two Forums as the focal points, but transforms them by creating better definition, plus a moderation of their scale and exposure. Charles Babbage Road will become a new 'Forum Link', providing an additional east-west connection through the site.

4.2.38 In later stages, the central part of the site will be connected by a new major open space, focused on the Listed Schlumberger Research building, adding a new element to urban structure. The site will ultimately have three east-west landscapes, within a strong connective network of public space.

Landscape opportunities



149. Site transformation: From reliance on southern link to integration across and through the site

4.2.39 The overall landscape concept is a 'Weave' - a series of north-south and east-west landscapes and connecting elements, which strongly connect the site from east to west and north to south. Each key landscape element will have its own character and identity related to use, location within the site and existing landscape features.

4.2.40 Connections from the east, from Cambridge city centre, should reflect the essence of the existing network of routes and open spaces ensuring that West Cambridge is relevant to the evolving story of the city.

4.2.41 The rural landscape of Cambridgeshire is particularly close to the west of the city, and is defined by large arable field parcels with an open aspect. Remnants of this agricultural landscape can be seen throughout the city, found in boundaries, markers such as trees, hedges and ditches that define the network of open spaces and routes that have shaped the urban grain.

4.2.42 To the north, the North West Cambridge Development provides pedestrian and cycle links into the West Cambridge site. The design and form of these networks needs to provide continuity between the sites, through scale, materials and way finding approaches.

Development structure and concepts



150. Site transformation: Development structure and concepts

4.3. Evolution of the proposals

Five key stages of work

4.3.1 The proposals have developed and evolved as a best practice response to the need to transform the existing site and respond to the requirements of existing and potential future occupiers.

- The initial work commenced in 2012 with an **Issues and Options Study**, a thorough analysis of the site and its deliverable potential. This study identified key issues and outlined broad strategies for transformation, based on site analysis and comparison with relevant precedents.
- In the next stage of work, the **Development Strategy (2013)**, the issues of development potential and optimal density were further tested with respect to the capacity of the surrounding network and University's Estate Strategy.
- The aim of the **Illustrative Masterplan (2014-15)** was to respond to occupier requirements by providing a flexible framework for a gradual transformation of the site, ensuring unhindered delivery of the University's Priority projects and a flexible framework for full build out. The masterplan dealt with uncertainty of long term plans and delivery by establishing a preferred urban structure based on optimal density and a growing network of open spaces.
- The **Illustrative Masterplan 2016**, maintains the key principles of the previous masterplan, but key variations were made in response to consultation and further consideration in terms of scale and layout. In addition, the masterplan now incorporates an 'inset masterplan' for the eastern part of the site, a representation of the requirements and aspirations of a key site occupier.
- The **Illustrative Masterplan 2017**, maintains the key principles of the 2016 masterplan but modifications were made in terms of development heights and protection of woodland buffers and existing trees within the site, size and configuration of open spaces, streets and Green Links.

4.3.2 The evolution of proposals can be traced through the development of key considerations, related to:

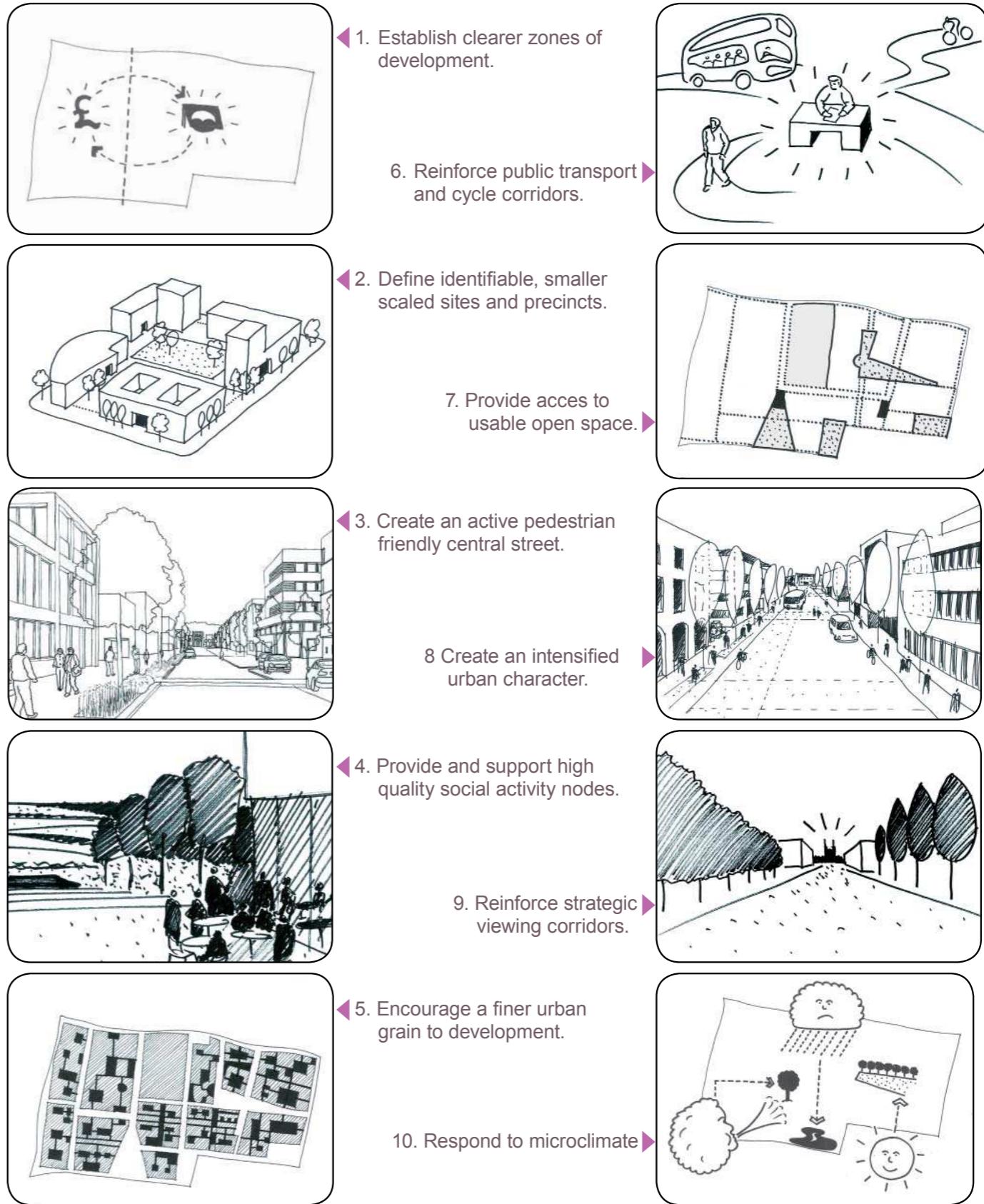
- over-arching strategies for transformation;
- options for distribution of key occupiers;
- key elements of open space structure, including transformation of the existing open spaces and addition of new landscape and public realm elements;
- optimal development density to achieve critical mass.

Issues and Options Study (2012)

4.3.3 The **Issues and Options Study, 2012**, included a thorough analysis of the site, set a framework for future reviews and provided an analysis into the deliverable potential of the site.

4.3.4 Design strategy recommendations addressed the key site issues and has so formed the basis for further work on the transformation of the site. The Issues and Options Study:

- established clearer zones of development which distinguished between flexible, long term academic use areas and commercial research areas, where land and buildings may be returned to the University on a shorter term cycle;
- defined identifiable, smaller scaled 'precincts' within the site, in order to create clusters of academic or commercial uses, each with a distinct character and identity: existing academic core areas should be enhanced to enable the future interaction with other academic and commercial research clusters at the North West Cambridge Development and beyond;
- envisaged the transformation of Charles Babbage Road into an active pedestrian friendly central street, in order to reinforce the academic core area, while accommodating a mix of uses, public frontage and access to public transport;
- provided support for high quality social activity nodes, within easy walking distance of each cluster/precinct;
- encouraged a finer urban grain to development, to improve the pedestrian experience, including forming some pedestrian only precincts with connected shared landscaped spaces;
- reinforced the need for public transport and cycle corridors: to improve access and car parking while reducing vehicle movement within each cluster/precinct;
- envisaged that the site required useable, public open space and landscape, to be well-maintained by the University;
- created an intensified urban character, through the definition of accent buildings, gateways and visual landmarks and by encouraging variety in height, legible public frontage to buildings and entrances;
- defined and reinforced strategic view corridors;
- defined the need to respond to microclimate.

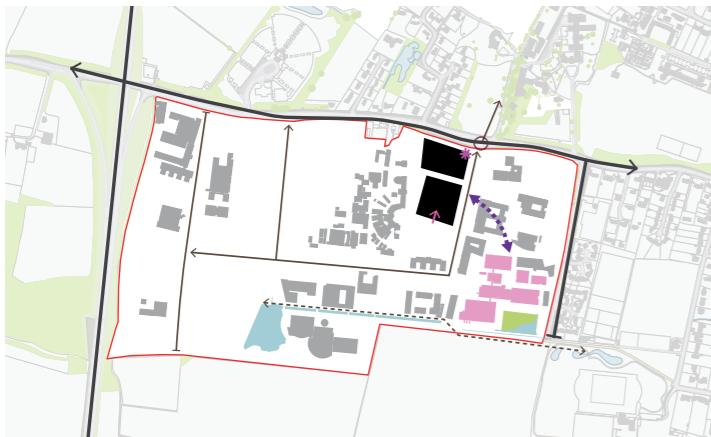


151. Issues and Options Study 2012 - Key principles for development at West Cambridge

Development Strategy (2013)

4.3.5 The masterplan, throughout its design development, has been significantly informed by the needs of the major current and potential future occupiers and the expected timelines of the associated University capital projects. The team sought to respond to the various requirements but remain consistent with the main design strategies.

4.3.6 This document set out a strategy for the whole site, without the Vet School (a key existing occupier). This key decision by the University enabled the strategy for a comprehensive development of the site for the first time. The considerations of other existing and future occupiers are set out on this page.



152. Key site occupiers: a new Cavendish III Laboratories

Cavendish III Laboratories

The Cavendish Laboratory currently occupies a complex of inadequate buildings at the south east corner of the site. A new facility for this world class research institution is a high priority capital plan project for the University.

The eastern paddocks provides an available and suitable site for Cavendish III, and the immediate impetus for change at West Cambridge.

While the original masterplan retained the East Paddocks for use by the Veterinary School and instead proposed development on west paddocks, this location is more beneficial for the transformation of the site and integration with the wider context. Cavendish III at this location represents a major catalyst for integrating West Cambridge to the academic uses north of Madingley Road (particularly to Astrophysics), and is sited at the heart of the proposed new eastern academic research cluster. Cavendish III on the East Paddocks will signal a major shift in direction for the site.



153. Key site occupiers: options for consolidating the Engineering Department at West Cambridge

Department of Engineering

Two potential sites were considered for the additional accommodation for the Department of Engineering, which would enable the Department to gradually move to and consolidate on the West Cambridge site.

The Department already occupies five buildings on the site and their location has played a significant role in deciding the future site - on the eastern side of the West Cambridge site.



154. Site Transformation: From reliance on southern link

Commercial Research Occupiers

Development of the large scale serviced plots fronting the Western lake for new commercial research occupiers could be combined with the next phase of the Schlumberger Research Building, so enhancing their long term position on the site and their contribution to the University achieving a major new commercial research address.



155. Site Transformation: From reliance on southern link

Veterinary School

This study was the first to consider West Cambridge without the Vet School. The Vet School at present occupies the key central area of the site.

The lowest density and largest site occupier by footprint, in the short term, the Vet School will be able to consolidate its operation in a secure, reduced precinct to allow for the development of Cavendish III on the eastern paddocks. Over the long term, it remains to be established whether this will be the best option for the ongoing teaching, research and clinical activities of the Vet School in Cambridge.

This enables a substantial land parcel to become available, offering a very significant long term development opportunity, as well as an opportunity to provide a substantial new public open space within the site.

Consultation and feedback

Engagement and Consultation

4.3.7 Significant engagement and consultation during the period 2014-2016 has included:

- Four meetings with the West Cambridge Community Group;
- Four meetings with the West and North West Consultative Cycling Group;
- A public exhibition through the North West Community Forum held on three separate dates;
- Nine pre-application meetings with Cambridge City Council. These meetings covered a variety of aspects of the proposals including planning, urban design, transport, open space and sustainability. Discussions also involved County Council officers;
- Technical meetings with Cambridgeshire County Council Highways officers;
- A Cambridgeshire Quality Panel Review;
- Two briefings to the Cambridge City Council Planning Committee;
- Meeting with Cambridge Past, Present and Future.

West Cambridge Community Group

4.3.8 The University formed a Community Group for the development at West Cambridge. This group is comprised of representative local stakeholders, who meet on a regular basis to contribute their views and ideas on behalf of the communities they represent. The meetings have provided a useful forum for the exchange of information, views and ideas about the proposals.

4.3.9 Community Group meetings were held in December 2014, February and May 2015, and March 2016 with focussed discussions on different aspects of the scheme including transport and accessibility, sustainability, design and social/community infrastructure. Key points raised by members included:

- the need to improve cycle routes between the area and the city centre;
- the need to form improved north-south links to offset east-west movements;
- the need to improve and ensure better separation between pedestrian and cycle routes;
- the need to minimise further vehicle congestion along Madingley Road through improvements to public and sustainable transport modes;
- the need to reduce noise impacts from the M11 in the area;
- the need to improve and supplement the Uni 4 bus service;
- the need to increase housing provision on the site;
- the need to establish activity on the site during the evening;
- the need to ensure quality in design of new buildings, giving due regard to appropriate heights and sensitive location of taller buildings;
- the need to improve pedestrian permeability and conditions to create better micro-climates on site;
- the need to improve public open space provision on the site;
- the need to create a public face to the local area;

- the need to conserve the heritage and environmental aspects of the site;
- the need to manage car parking arrangements;
- the need to ensure sufficient infrastructure capacity to support development;
- the need to respond to future City Deal proposals.

West and North West Consultative Cycling Group

4.3.10 A consultative cycling group was established by the University as part of the West Cambridge and NWCD Developments. This group is comprised of interested cycling stakeholders and local representatives who contribute to developing and improving the cycling experience around the North West and West Cambridge sites, as well as considering the connectivity for all users around, through and between the two sites.

4.3.11 Through this group, the University has shared and explored thoughts and opinions from the local community on cycling and connectivity and how the cycling experience can be enhanced through the Proposed Development at West Cambridge. Regular meetings have been held with the Cycling Group through the development of the proposals and feedback has been taken into consideration.

West Cambridge Masterplan



West Cambridge Masterplan



West Cambridge Masterplan



North West Community Forum

4.3.12 The North West Community Forum is organised by Cambridge City Council and South Cambridgeshire District Council to provide an opportunity for individuals to find out more about planning and development in the North West and West of Cambridge. Emerging proposals for West Cambridge were presented at the Community Forum in March 2015. A further presentation was given in October 2015 in order to provide an update to members.

Pre-Application Meetings with Cambridge City Council

4.3.13 The University has worked in close collaboration with Cambridge City Council on the evolution of the Proposed Development at West Cambridge.

4.3.14 Nine pre-application meetings were held with Cambridge City Council throughout the design development period. The first meeting was introductory in nature and provided an opportunity for the University to present the vision and aspirations for the Proposed Development, and to establish the principle of revisiting the existing consented masterplan to enable delivery of an uplift in academic and commercial floorspace. Subsequent meetings covered a number of different aspects of the scheme proposals such as:

- Proposed land uses and distribution;
- Design and layout, including building heights and plot development;
- Social/amenity facilities;
- Green infrastructure and open space;
- Phasing of development and public realm;
- Access, movement and transport;
- Sustainability.

4.3.15 Guidance and comments from Cambridge City Council have been taken on board and have informed the evolution of the Proposed Development.

Councillor Briefing Sessions

4.3.16 Briefing sessions have been held with Cambridge City Council and Cambridgeshire County Council members in November 2014, September 2015 and March 2016. These discussion-based engagement sessions were facilitated by City Council Officers and members of the project team.

4.3.17 Discussions were based around the following key themes:

- Strategy and Development;
- Transport and Connectivity;
- Housing;
- Open Space;
- Amenities;
- Phasing and Communications.



157. Quality Panel Review: Presentation Front Cover

Cambridgeshire Quality Panel Review

4.3.18 Emerging design proposals for West Cambridge were presented to the Cambridgeshire Quality Panel in April 2015. The Panel were supportive of the proposal and encouraged by the University's approach to sustainability and landscape, and considered the anticipated improvements in the public transport provision and enhanced cycling and walking routes back into the city as essential for the development of the site. The Panel made the following recommendations:

- give due consideration to the integration of academic and commercial properties and how they will relate to each other on the site;
- ensure that the open spaces will work for the benefit of the site, the occupiers and users and for the city;
- endeavour to reduce the amount of car parking provided;
- provide high quality landscape and planting;
- consider the appropriate mix of land uses;
- draw on precedents and examples of joint academic/commercial partner campuses or developments.

4.3.19 A second Cambridgeshire Quality Review Panel was held in March 2016. The Panel remained supportive of the proposals and appreciated the level of constraints the masterplan has to consider over the whole site. The Panel made the following recommendations:

- provide a plan showing proposed private and public spaces;
- provide a phasing strategy and impacts on the overall design;
- ensure the landscape and public realm strategy interacts with shared amenities and the phasing of the development;
- what makes this a special place? This has to be a location that attracts the brightest and the best;
- if this site is designed to complement the North West Cambridge development, sufficient priority should be given to connections between the two sites.

4.3.20 The Panel noted that a comprehensive planning application is being prepared which will answer some of these questions, and would like to review and comment on the underlying strategy and parameter plans.

Post-Application Meetings

4.3.21 Cambridge City and Cambridgeshire County Councils

4.3.22 Since the submission of the application in June 2016 the University has held a number of workshops with Cambridge City Council and Cambridgeshire County Council to address comments raised by officers. The workshops covered a number of topics including:

- Transport, Parking and Servicing
- Trees and Development Parcels
- Sustainability
- Landscape and Visual Impact Assessment and Parameter Plan 05: Building Heights
- The Vision for West Cambridge
- Drainage
- Parameter Plans
- Public Realm
- Design Guidelines
- Air Quality and Noise
- Public Art Delivery

4.3.23 Post consultation with the City and County Councils was an iterative process and saw the University submit a number of draft documents to the Councils to inform and address comments raised during the workshops. Guidance and comments from Cambridge City and Cambridgeshire County Councils have therefore been taken onboard and informed the revised proposed development.

Response to consultation - evolution of the masterplan



158. Illustrative Masterplan - Version 1 for consultation, February 2015

West Cambridge Illustrative Masterplan - Version 1 for Consultation (February 2015)

4.3.24 The above plan shows the initial version of the masterplan, which was developed from internal and external consultation through the 2014-2015 period.

4.3.25 This version of the masterplan has been used in consultation throughout the rest of 2015 and into 2016.

4.3.26 The following pages set out the key issues raised and the responses made in relation to the masterplan and Development Proposals.

4.3.27 The consultation raised various key issues to be addressed:

- **Open space:** the development was perceived to be dense and possibly over-developed. There was a concern about a lack of a single large open space where people could gather in larger numbers and about open spaces overall not substantial enough to support the amount of development and working population;
- **Building heights:** heights as proposed by the accompanying draft Parameter Plans raised fears of possible unbalanced development and there was concern over daylighting and shading of new and existing open spaces;



159. Illustrative Masterplan - Version 1 - Key issues raised through consultation

▪ **Energy Centre:** this facility, in the 2015 masterplan was located to the northern edge of the development, adjacent to Madingley Road. Both this and a location in the western part of the site were allowed for in the Parameter Plans. The northern location was felt to be too close to existing residential uses and may have had detrimental visual impacts on Madingley Road and adjacent Conservation Areas;

▪ **Social amenities:** there was uncertainty as to whether the social amenities strategy was robust, would produce a good amount of activity throughout the site and would be delivered in time to serve other (academic and commercial research) developments;

▪ **Residential development:** there was concern about the lack of additional residential uses within the site, the impacts on existing residential of additional non-residential uses and the creation of activity into the evening and through the weekend on existing residential amenity;

▪ **Cycle/Walking/Buses/Transport:** throughout the consultation, site occupiers and neighbouring residents were concerned about additional car traffic. At the same time, many site users have advocated for additional car parking spaces;

▪ **Views from south:** these views were considered to be highly sensitive and that development, in form and height, must respond to and reduce any impacts of the development on the open countryside and Green Belt. In particular, there was a request to avoid long continuous frontages along the southern edge and ensure generous landscaped breaks were secured.



160. Illustrative Masterplan - Version 1 - Initial Response to Consultation (October 2015)

Version 1: Initial response (October 2015) - Character: Open space and heights

4.3.28 In response to this initial round of consultation the proposed open space structure was reconsidered. The result was The Central Green: a centrally located, enlarged section of the east-west green space, incorporating a group of existing mature trees in the Vet School compound. This space was included to ensure that there is one larger space which can serve the whole of the West Cambridge community.

4.3.29 Further definition was given to this open space by establishing minimum width dimensions and maximum frontage heights to ensure an open, more informal aspect which relates well to the types of spaces found within Cambridge city centre.



161. Illustrative Masterplan - Version 1 - key integration areas

Version 1: Key integration areas - Character & Community

4.3.30 Further consultation with the design teams of the departments of Engineering and Physics, enabled more detailed requirements of future occupiers to be integrated within the Illustrative Masterplan. Around this time, the University had also completed a study which provided the brief and timing for the first shared facility.

The Illustrative Masterplan 2016 - a comprehensive response

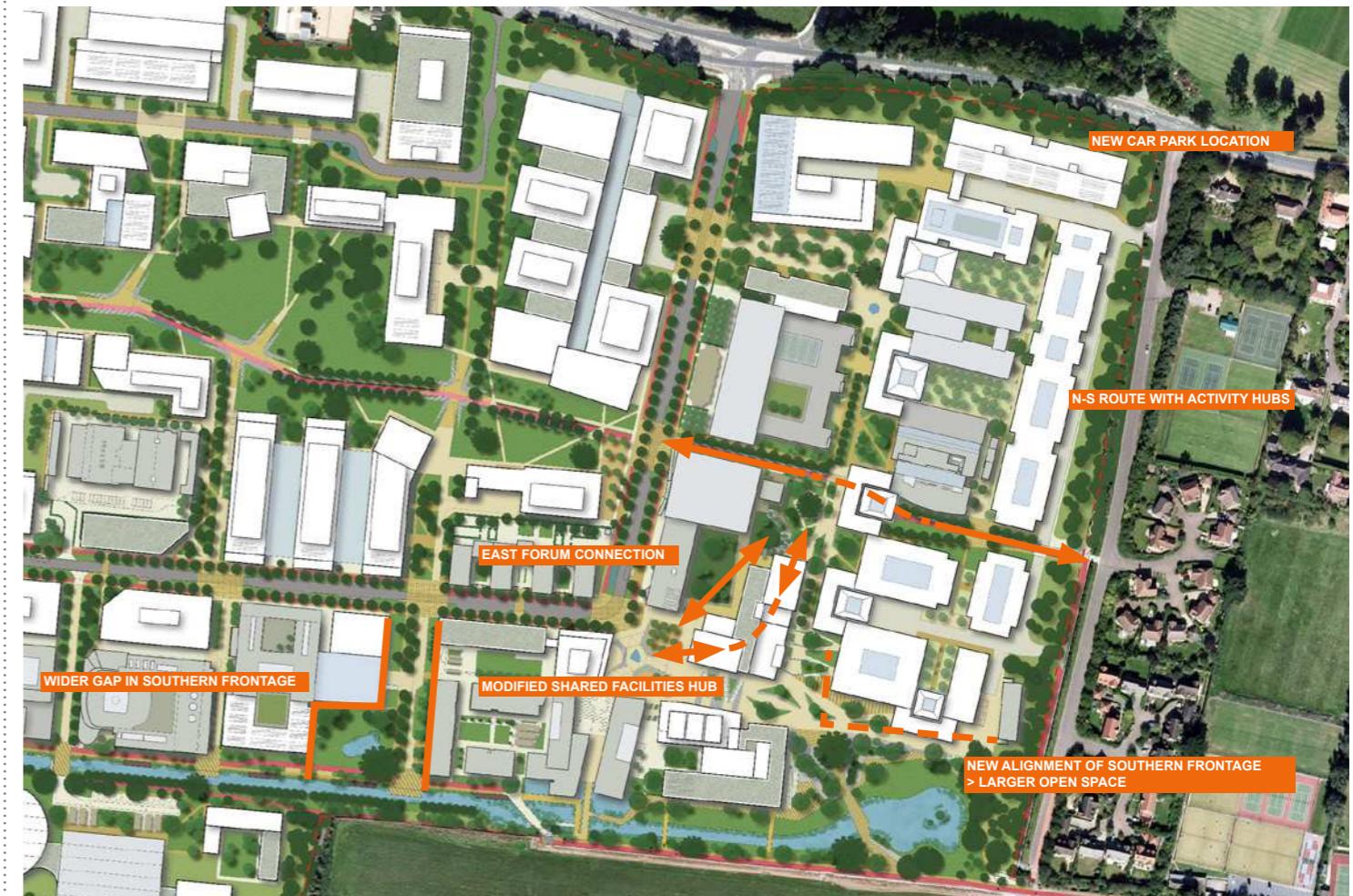


162. Illustrative Masterplan - Version 2 - a comprehensive response (March 2016)

West Cambridge Illustrative Masterplan - a comprehensive response (March 2016)

4.3.31 The above masterplan and extracts following on these pages, represent a comprehensive review of the previous 2015 masterplan through internal and external consultation.

4.3.32 The following images highlight the key changes.



163. Community Forum Consultation Boards

Version 2 - Integration with Department of Engineering & Cavendish III

4.3.33 The needs and requirements of the Department of Engineering, as represented through their 'inset masterplan' by Grimshaw Architects, were integrated into the 2016 Illustrative Masterplan. Collaborative work with the Department's design team ensured that key principles of the masterplan were maintained. Key elements were considered:

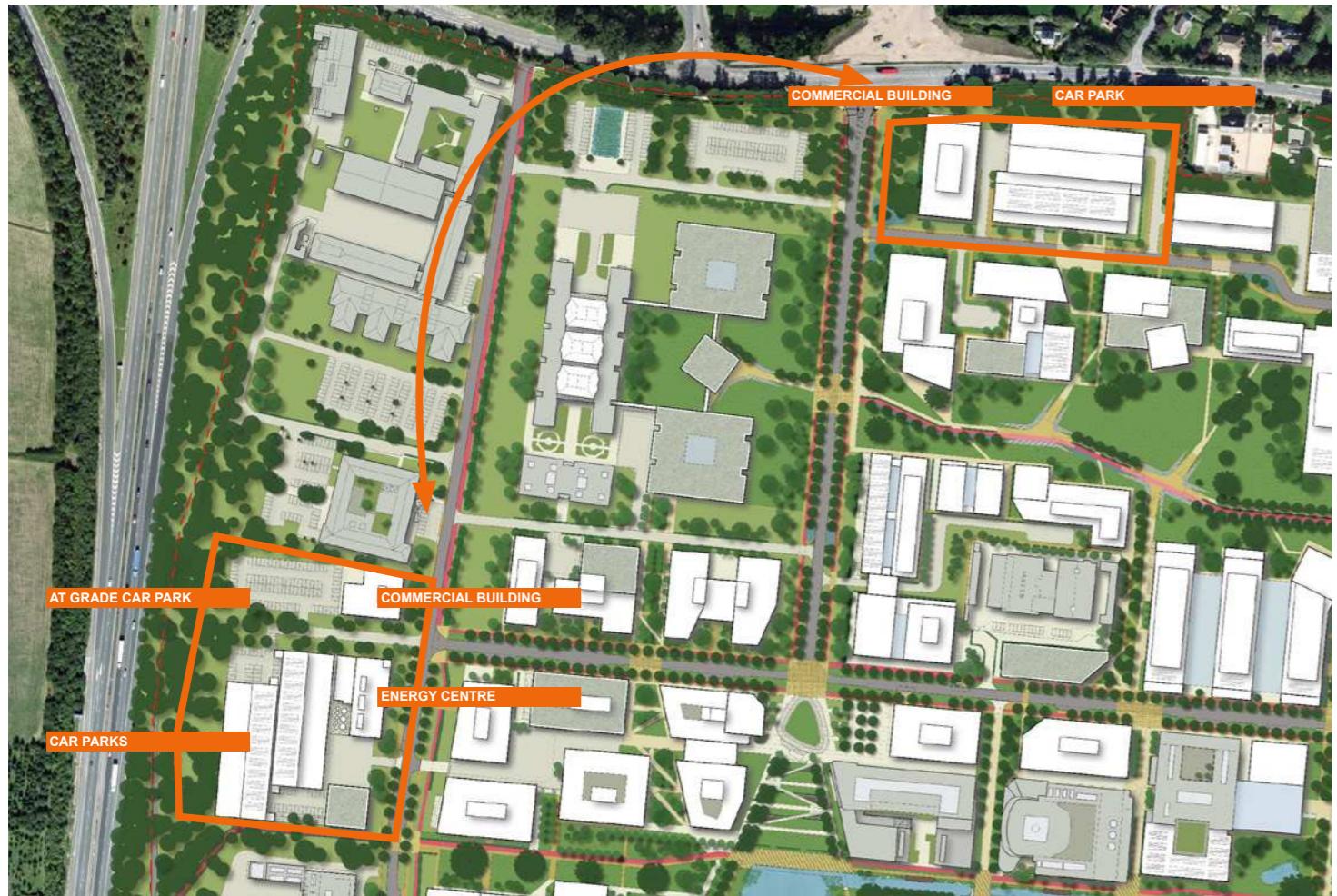
- Extent and definition of the **East Pond open space**, ensuring that a good sized space was formed allowing for the increase in area of the pond for drainage purposes as well as adequate space for activity and spill out from buildings;

- **Heights** - ensuring that the proposed heights sit well within the Heights Parameter Plan and that location of accent buildings is in accordance with both site and inset masterplan principles;

- **Shared facilities building** - exploring location, form and extent while ensuring a strong relationship and pedestrian links to the East Forum spaces to the south of the 'inset masterplan';

- **New car park location** - ensuring that the car park can be accommodated within the height parameters; and

- **Green link** to east of IfM Building - ensuring that the new frontage is set back to provide a more generous width for the north-south Green Link and also additional landscape along the southern frontage - large enough for forest size tree planting.



164. Community Forum Consultation Boards

Version 2 - New location for Energy Centre and related changes

4.3.34 The original location for the Energy Centre, on the northern edge of the site was considered to be too close to existing residential and too sensitive in terms of visual impact on Madingley Road and the conservation areas to the north.

4.3.35 The Energy Centre was re-located to the western edge of the site and co-located with car parking structures and storage facilities. The Energy Centre was located to provide a feature that terminates views from along Charles Babbage Road.

4.3.36 On the former Energy Centre site at Madingley Road there is now potential for a commercial building that could help form a gateway event at the junction of High Cross and Madingley Road.



165. Community Forum Consultation Boards

Version 2 - Activity Focus - The Green, a new open space at full capacity

4.3.37 A more extensive space has been formed in the centre of the east-west greenspace and at the centre of the site. This space provides for relaxation, reflection and informal activities, within a predominantly green open space. The careful location of this space allows for a group of large mature category 'A' trees to be retained and incorporated within the new space.

4.3.38 The updated illustrative masterplan also shows moderation of cycle and pedestrian lanes to allow for greater dominance of soft over hard surfaces. Inspired by other Cambridge spaces such as Queen's Road and Christ's Pieces, the plan shows how the key paths could be lined by trees and building frontages partially hidden behind generous trees and undergrowth.

4.3.39 Together with enlargement of the central open space, the north-south links were also been widened.

The Illustrative Masterplan 2017 - consolidation and definition of masterplan principles



166. Illustrative Masterplan - Version 3 - (May 2017)

4.3.40 The Outline Application material based on the Version 2 Illustrative Masterplan was submitted in June 2016.

4.3.41 Comments were received from Cambridge City Council in relation to maximum heights and visual impact (at site edges and at landmark elements); protection and enhancement of woodland buffers at the site edges and specimen trees within the site; definition of The Green open space (alignment, view corridors, minimum dimensions and sunlight/daylight); definition of Green Links; and the character and transformation of the existing streets.

4.3.42 Representations were also submitted by the local community in relation to the Design Guidelines, vehicle and servicing access, road safety, construction traffic, car parking, cycling, transport, the Green Corridor, noise, flood risk and drainage, construction Environment Management Plan.

4.3.43 The comments have been considered and incorporated into version 3 of the illustrative masterplan, which is set out in paragraph 4.3.44- 4.3.59.



167. Protecting and enhancing site edges: Woodland buffers, Height limitations

Version 3: Protecting and enhancing the site edges

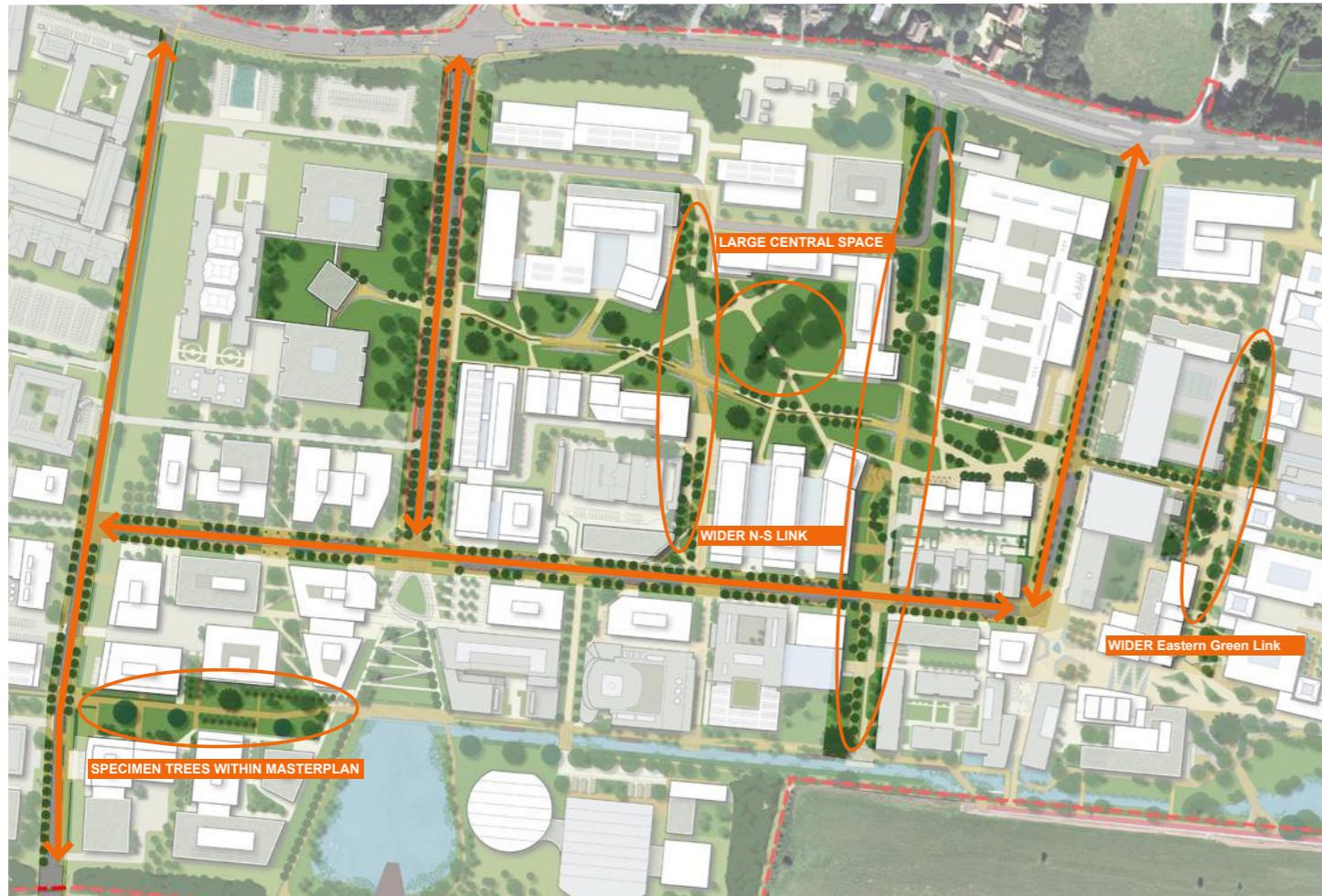
4.3.44 Further work on the quality and location of trees, resulted in an updated tree survey, which has now been incorporated into the Arboricultural Impact Assessment and Woodland Management Plan submitted as part of the Application.

4.3.45 Woodland buffers at the site edges were each examined and provided with a 'buffer zone' or development setback to ensure that any immature trees can grow to their full potential and more mature woodland is not adversely affected by development being located too closeby.

4.3.46 By establishing these buffer zones, development, especially along the northern boundary of the site has been located further to the south, sensitively positioned away from Madingley Road and the existing residential and Conservation Areas.

4.3.47 Development heights as described within the Parameter Plans and the Design Guidelines have been further interrogated and have been reduced at all the site edges and especially to the south, to protect these sensitive views. Heights at edges have been carefully considered so that development is not only further set back from the edges but are also now set below the heights of the present woodland buffers. Please refer to Section 05 of this document for the Heights Parameter Plan.

4.3.48 Smaller pocket landscape spaces have been defined in the Design Guidelines to allow for tree planting to grow to maturity and add to the landscape setting of the site. In addition these serve to break up the southern frontage of development. These pocket spaces are generally located along the southern boundary of the site.



168. Strengthening the landscape structure of the site (the Green, the Green Links and the existing streets

Version 3: Consolidation of the Landscape structure of the masterplan

4.3.49 In addition to renewed focus on the site edges, existing landscape within the site has been re-examined.

4.3.50 The existing street trees and hedgerows have been provided with buffers and setbacks to ensure they are retained within the new masterplan and allowed to grow to their full potential. This has resulted in development frontages being set back in a number of locations.

4.3.51 In addition category 'A' and 'B' specimen trees within the site were provided with individual setback zones to ensure their protection and retention within the masterplan.

4.3.52 The Green Links within the development have been provided with minimum widths, that incorporate tree protection buffer zones for existing trees along these corridors.

4.3.53 The Green open space has now been robustly defined within the Parameter Plans and the Design Guidelines. Maximum development frontage heights, with setbacks above have been developed to ensure that the space receives light and sun. The view corridor to the Schlumberger Research Building (Grade II* Listed) is now established in Parameter Plans.

4.3.54 In addition, the minimum dimensions are prescribed, including minimum widths between frontages and minimum areas for each of the individual Gardens within The Green.

4.3.55 The design for all existing streets has been reviewed and amended to ensure their transformation in character, the retention of existing street trees and the good incorporation of speed reducing measures and cycle movement.



169. Integration of the University's Priority Projects - Cavendish III Laboratory, Engineering Department, Shared Facilities Hub.

Version 3: Key integration areas - Character & Community

4.3.56 Further consultation with the design teams of the Departments of Engineering and Physics has enabled their emerging masterplans and building proposals to be integrated within the updated Illustrative Masterplan.

4.3.57 In addition, design teams have now been appointed by the University to design the first Shared Facilities Hub located to the south of the Green, the new Cavendish III Laboratory as well as JJ Thomson Garden.

4.3.58 These key Priority Projects for the University have now been integrated and the illustrative masterplan Version 3 reflects these three emerging proposals for West Cambridge.

4.3.59 In addition, the first building for the Department of Engineering, the UKCRIC Building, has now received Planning Permission and is incorporated into the 2017 illustrative masterplan through an update to the Department of Engineering's inset masterplan in the east of the site.

Four emerging projects



170. The Civil Engineering Building for the Department of Engineering (UKCRIC) - Grimshaw Architects

UKCRIC Building for the Dept. of Engineering

4.3.60 This key University Priority Project received planning permission in February 2017. This building has been designed by Grimshaw Architects who are also the Department's masterplanners for the inset masterplan for the Department of Engineering.

4.3.61 Located at the eastern edge of the site, this building will be first in a range of similar new laboratory and workshop buildings for the Department. The new building will displace existing surface car parking and so will begin the process of intensifying the site and increasing its population.

4.3.62 The building is compliant with Height Parameters and Design Guidelines. Located adjacent to the eastern site edge, this building will sit well behind the existing woodland buffer and will have little visual impact on Clerk Maxwell Road and other areas to the east.



171. Cavendish III Laboratories - Jestico + Whiles Architects

Cavendish III Laboratory

4.3.63 The brief for the building has led to an innovative approach to the use of materials. The building design includes thermochromic glass louvres that change transparency according to the amount of direct sun or heat they are exposed to, so maximising the building's environmental performance and sustainability.

4.3.64 The Department of Physics has appointed Jestico + Whiles as the architect for their new laboratory building, Cavendish III, to be located to the west side of JJ Thomson Avenue.

4.3.65 This large floorplate building is a major development for the University and for West Cambridge, transforming the nature and character of JJ Thomson Avenue with new enclosure and definition.

4.3.66 The main entrance to the building will be located on the south-east corner of the building overlooking both these spaces and engaging with the East Forum Upper Square further to the south.



4.3.67 A substantial transparent element of the building is proposed. Containing major academic social spaces such as lecture theatres, social and break out spaces, a library and seminar and study spaces, this element will be located on the frontage to JJ Thomson Avenue providing visual activity and a high degree of overlooking to JJ Thomson Avenue.

4.3.68 In addition, it is proposed that the internal working spaces and laboratories within the building will be apparent from The Green open space, enabling the 'showcasing of science' within the public realm of the West Cambridge site.



172. Shared Facilities Building - Jestico + Whiles Architects

Shared Facilities Building

4.3.69 Jestico + Whiles Architects have also been commissioned by the University to develop designs for the first of the major Shared Facilities Buildings

4.3.70 This building will be located to the south of The Green, facing the new Cavendish III Laboratory, and will accommodate a large canteen and smaller cafe at ground floor, with social spaces, working and study spaces located on upper floors - all overlooking The Green.

4.3.71 This building is the first manifestation of the University's strategy to invigorate the West Cambridge site and provide opportunity for new academic interactions and collaborations.

4.3.72 The building is conceived to be an extension of The Green open space, with transparent frontages at ground and upper floors, landscaped courtyards on the various levels as well as activity from the catering facilities spilling out into The Green and onto JJ Thomson Avenue.



173. JJ Thomson Garden - the first phase of The Green open space - Aecom

JJ Thomson Garden

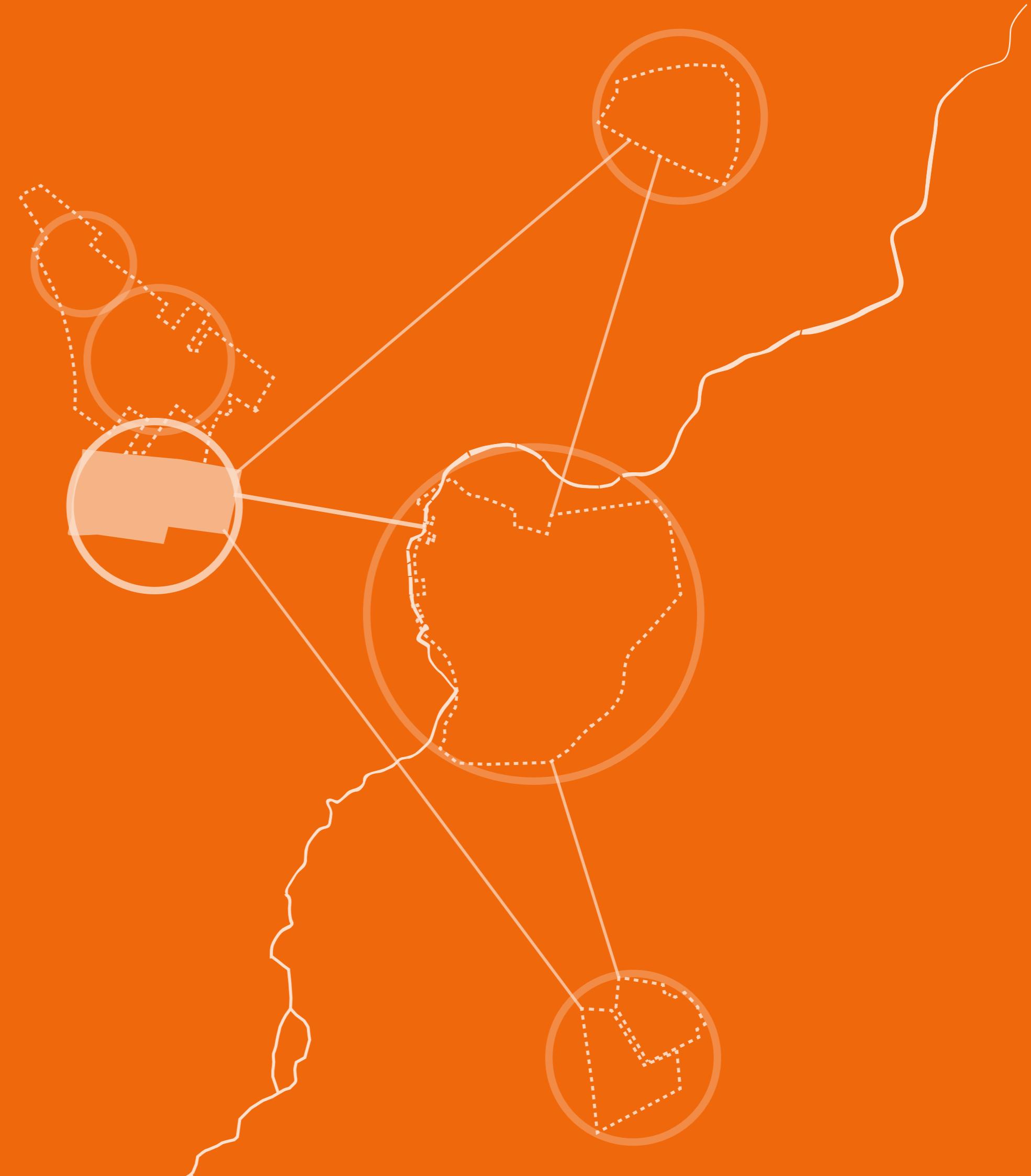
4.3.73 The first phase of The Green open space is under design development by Aecom Landscape. This space is bounded by JJ Thomson Avenue in the east, the existing Vet School in the west (for an interim period), and in the future this space will be formed by the new Cavendish III Laboratory in the north and the new Shared Facilities Hub in the south.

4.3.74 This space, called JJ Thomson Garden, will come forward alongside the two proposed University developments to the north and south, ensuring that a complete and integrated character area is formed immediately.

4.3.75 The space has been designed in conjunction with the surrounding proposed developments and considers the integration of the existing Vet School into the wider academic cluster in the interim condition.

4.3.76 Within the space a new shared pedestrian and cycle strategic route will be established, which will eventually connect JJ Thomson Avenue and High Cross.

4.3.77 This new green space will form a new pedestrian activity focus for the east of the site as well as providing additional amenity for new and existing occupiers.



PROPOSED DEVELOPMENT

A5

A1 University need	A2 University vision	A3 Development context International, Strategic and Local	A4 Masterplan development process	A5 Proposed development
				<p>Description of Development Demolitions Parameter Plans</p> <p>Key issues: Application Zones Development Building Zones Land use Access and Movement Landscape and Public Realm Maximum Building Heights</p>

5. PROPOSED DEVELOPMENT

5.1. Parameter Plans

Amount of development

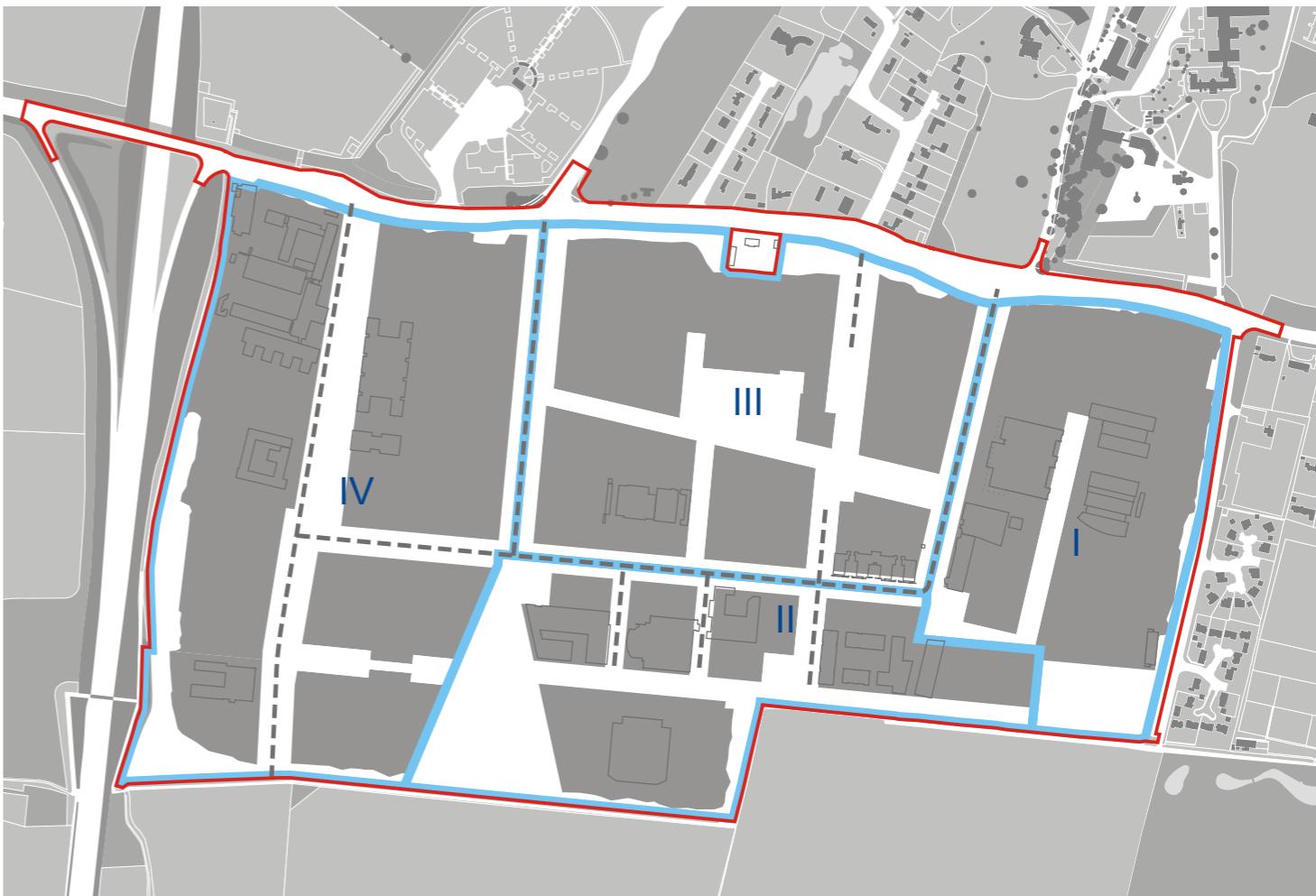
5.1.1 The Outline Planning Application seeks permission for up to 383,300 m² (GEA) of additional floorspace. The breakdown of this floorspace by the class is shown in the table. The distribution of floorspace across the site will be governed by the Building Development Zones parameter plan.

Land Use	Academic research	Nursery	Commercial research / research institutes*	Shop, cafe, restaurant, public house	Assembly & leisure (sports)	Ancillary infrastructure (data centre, energy centre)	Total proposed floorspace
Use Class	D1	D1	B1b / sui generis	A1-A5	D2	Sui generis	
Building Zone I	Up to 77,000	Up to 1,500	Up to 21,900	Up to 1,000	0	0	Up to 77,000
Building Zone II	Up to 38,600	Up to 1,500	Up to 38,600	Up to 500	Up to 4,100	0	Up to 44,500
Building Zone III	Up to 178,400	Up to 1,500	Up to 51,700	Up to 1,500	0	Up to 2,000	Up to 182,100
Building Zone IV	Up to 104,000	Up to 1,500	Up to 104,000	Up to 1,500	0	Up to 4,500	Up to 110,500
Total Proposed floorspace	Up to 370,000	Up to 2,500	Up to 170,000	Up to 4,000	Up to 4,100	Up to 5,700	Up to 383,300

174. Schedule of Land Use and Amount of Development

All figures quoted are Gross Floor Area, m²

*Research Institutes are taken to mean *sui generis* uses affiliated with the University, Research Companies or other research organisations



175. Parameter Plan 1: Development Zones

KEY

Contextual Information:
 ----- Existing street
 □ Existing building to be retained

For Approval:
 — Application site boundary
 — Development zones
 ■ Building zones

Land use

5.1.2 The disposition of land uses within the development is set out in Parameter Plan 2.

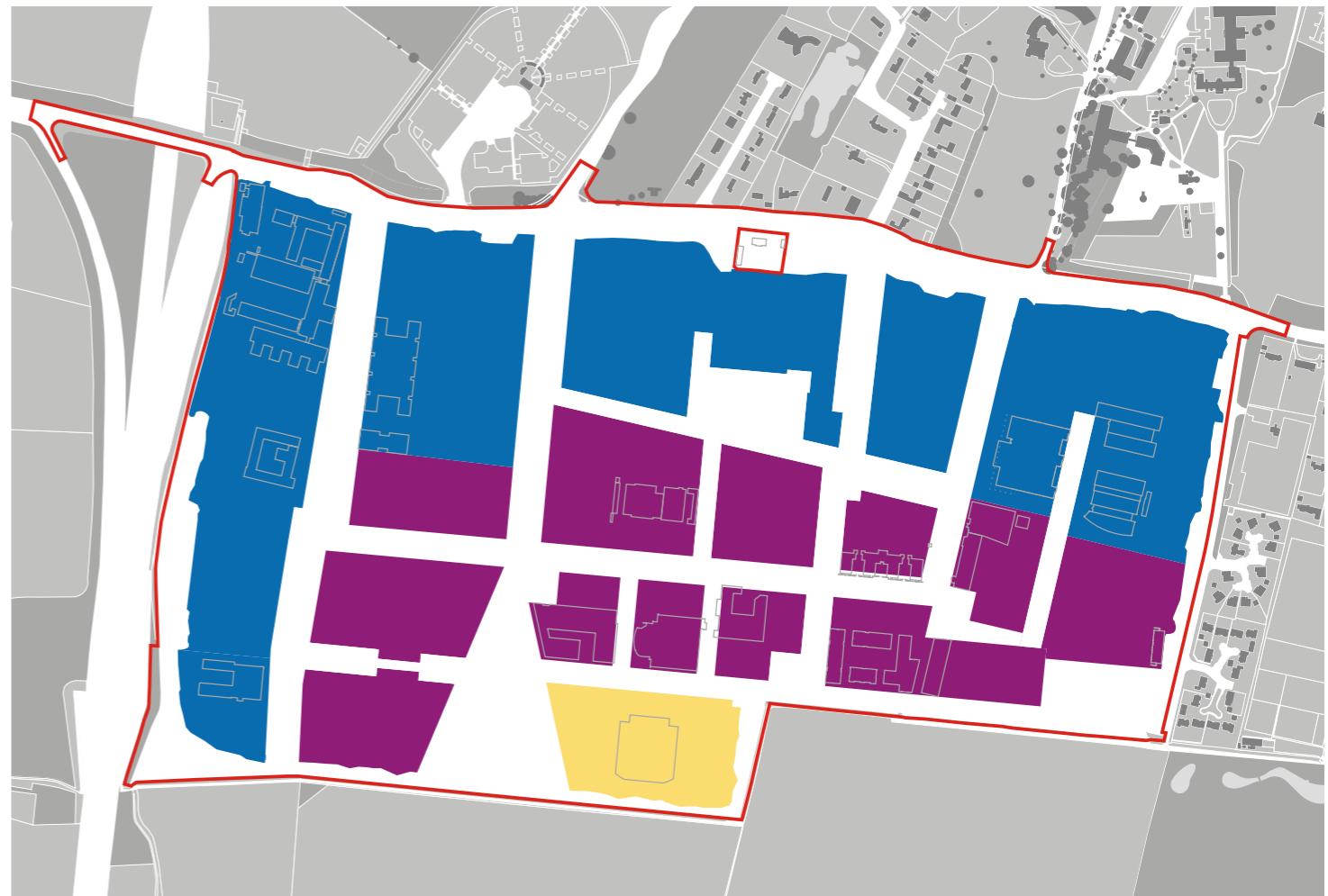
5.1.3 The parameter allows for flexibility and blending of academic research and commercial research/research institutes uses across the site.

5.1.4 The majority of social amenities will be associated with academic or commercial research development and covered under those categories (Classes D1 and B1b). The main hubs for social amenities will be at East and West Forum but smaller scale social spaces are to be provided in locations related to key open spaces as shown in the land use strategy diagram.

5.1.5 In addition to these social amenities there will also be a provision for cafés, restaurants and pubs which will be categorised as A1 to A5 uses and not directly associated with academic or commercial development. The location for these uses is envisaged predominantly in West and East Forum areas and also possible in the areas between them: along Charles Babbage Road and Southern Ecological Corridor.



176. Land use strategy - one possible distribution



177. Parameter Plan 2: Land Uses

KEY

For Approval:	
—	Application site boundary
■	Academic & Commercial Mix: D1, B1b, sui generis
■	Mixed Use Zone: A1-A5, B1b, D1
■	Community Uses: D1, D2

Access and movement

5.1.6 The access and movement parameters are set out in Parameter Plan 3, and reflect the movement principles diagrams on the right. The movement principles start from the existing conditions, which they seek to respond to and improve.

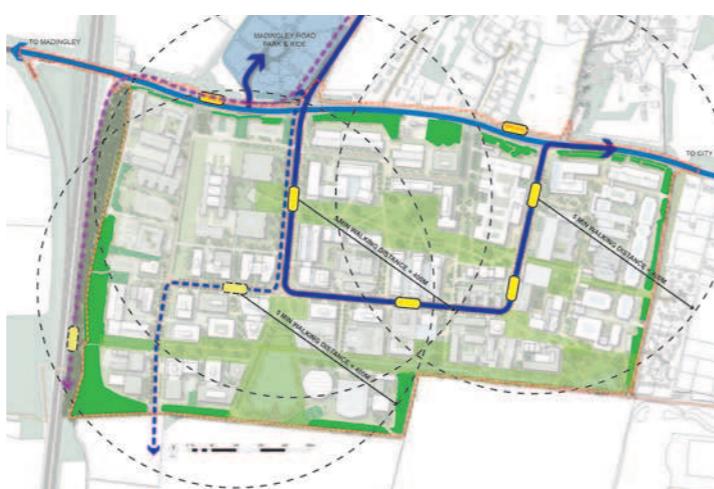
5.1.7 The primary vehicular movement network is associated with the existing primary streets: High Cross, JJ Thomson Avenue, Charles Babbage Road and Western Access/Ada Lovelace Road. These streets can also incorporate bus routes (not including Western Access/Ada Lovelace Road).

5.1.8 The primary cycle network is provided through key east-west open spaces in which vehicular movement is restricted. In addition, separate cycle routes are provided along JJ Thomson Avenue and High Cross. Secondary cycle routes are envisaged for localised distribution and are accommodated in north-south links, alongside pedestrian routes and, in places, along service access.

5.1.9 New or improved site accesses for vehicles and/or pedestrians and cyclists are proposed within the limits of deviation shown on Parameter Plan 3.



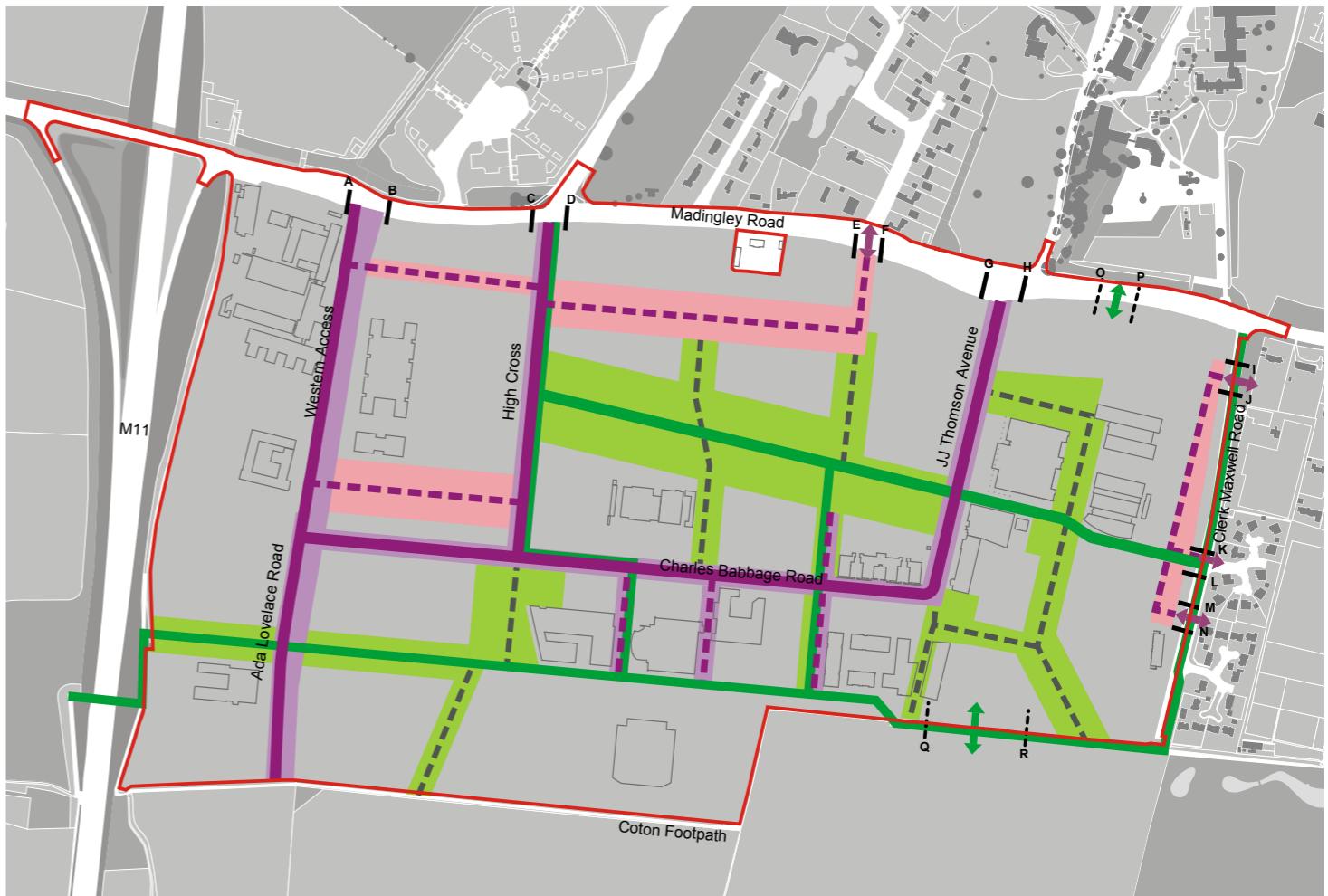
178. Design Principles: Pedestrian and Cycle network



179. Design Principles: Public Transport



180. Design Principles: Vehicular Movement



181. Parameter Plan 3: Access and Movement

Contextual Information:
Primary street
Secondary street
Primary pedestrian/cycle route
Secondary pedestrian/cycle route

For Approval:
Application site boundary
Intervention zone for street
Flexible zone for street
Secondary Vehicular access/egress points
Secondary Vehicular egress only
Secondary pedestrian and cycle only access/egress points
Flexible zone for pedestrian and cycle routes
Zones of access points
General access points for pedestrians and cyclists

Landscape and public realm

5.1.10 The Landscape and Public Realm proposals are set out in Parameter Plan 4. The existing spaces are to be incorporated and new spaces added, with a goal to create a clear hierarchy and a variety of usable and accessible open spaces; as well as overall greener setting for the site.

5.1.11 A new open space will be created across the central part of the site. The parameters allow a level of flexibility for the layout of this space, but its minimum overall area must be 2.9ha and the open space must:

- Include the mandatory location shaded in orange which provides a minimum 20m wide view corridor from Schlumberger to King's College Chapel;
- Be located entirely within the identified Flexible Zone; and
- Have a minimum width of 40m along its entire length between JJ Thomson Avenue and High Cross and have a minimum width of 100m along a minimum 100m continuous length.

5.1.12 Other important elements of the proposals include reinforcement of the existing Southern Ecological Corridor and establishment of north-south Green Links along exiting corridors.

5.1.13 Please see accompanying Design Guidelines and Parameter Statement for guidance on Southern Ecological Corridor and Green Links.



182. Design Principles: Open space network



183. Design Principles: Ecology and bio-diversity



184. Design Principles: Open space - activities



185. Parameter Plan 4: Landscape and Public Realm

KEY

Contextual Information:
— Existing street/ Pedestrian link
▨ Existing retained open land
■ Retention & Reinforcement of existing woodland edge
■ Water Bodies
■ Canal / swale

For Approval:
— Application site boundary
Primary landscape and public realm:
■ East Forum (Mandatory location)
■ West Forum (Mandatory location)
■ The Green (Mandatory location)
■ The Green minimum area - indicative location
Secondary landscape and public realm (Mandatory location)
■ Additional Secondary landscape and public realm (Indicative boundary)
■ Street landscape areas (Mandatory location)
■ Flexible zone for landscape and public realm
■ Woodland buffer zones

Maximum building heights

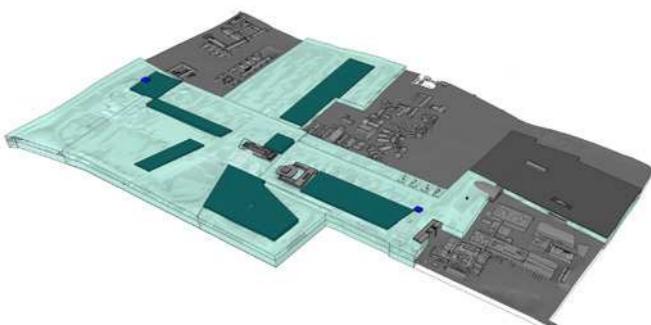
5.1.14 Parameter Plan 5 defines the maximum heights of buildings as measured to the maximum height of any rooftop plant (excluding any lightning conductors, weather vanes, chimneys/exhaust flues, telecommunications equipment and aerials).

5.1.15 In overall scale and predominant heights, the new parameter heights are consistent with the rules set out in the 1999 masterplan, which were the basis for many of the existing developments implemented since 1999.

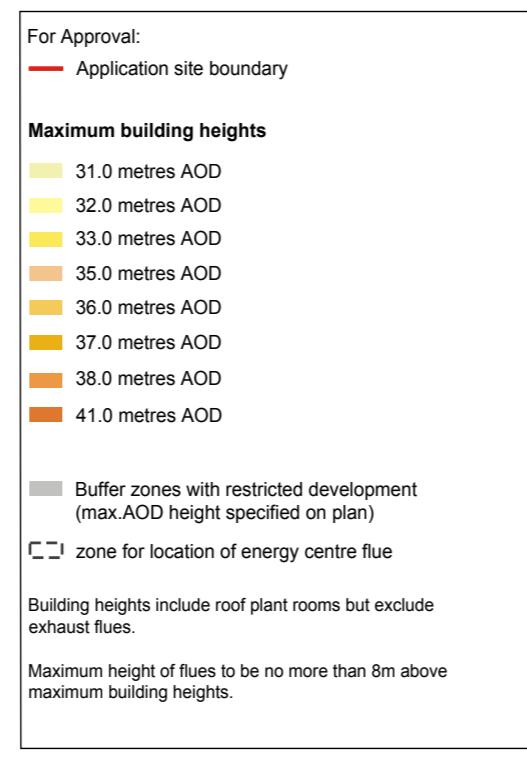
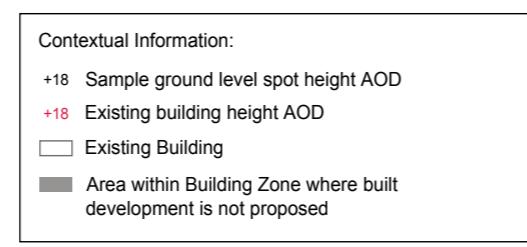
5.1.16 Heights are generally lower towards the site edges and higher within the centre of the site. Heights are kept lower adjacent to the Schlumberger Research building to ensure that the roof structure remains visually dominant in the western part of the site.



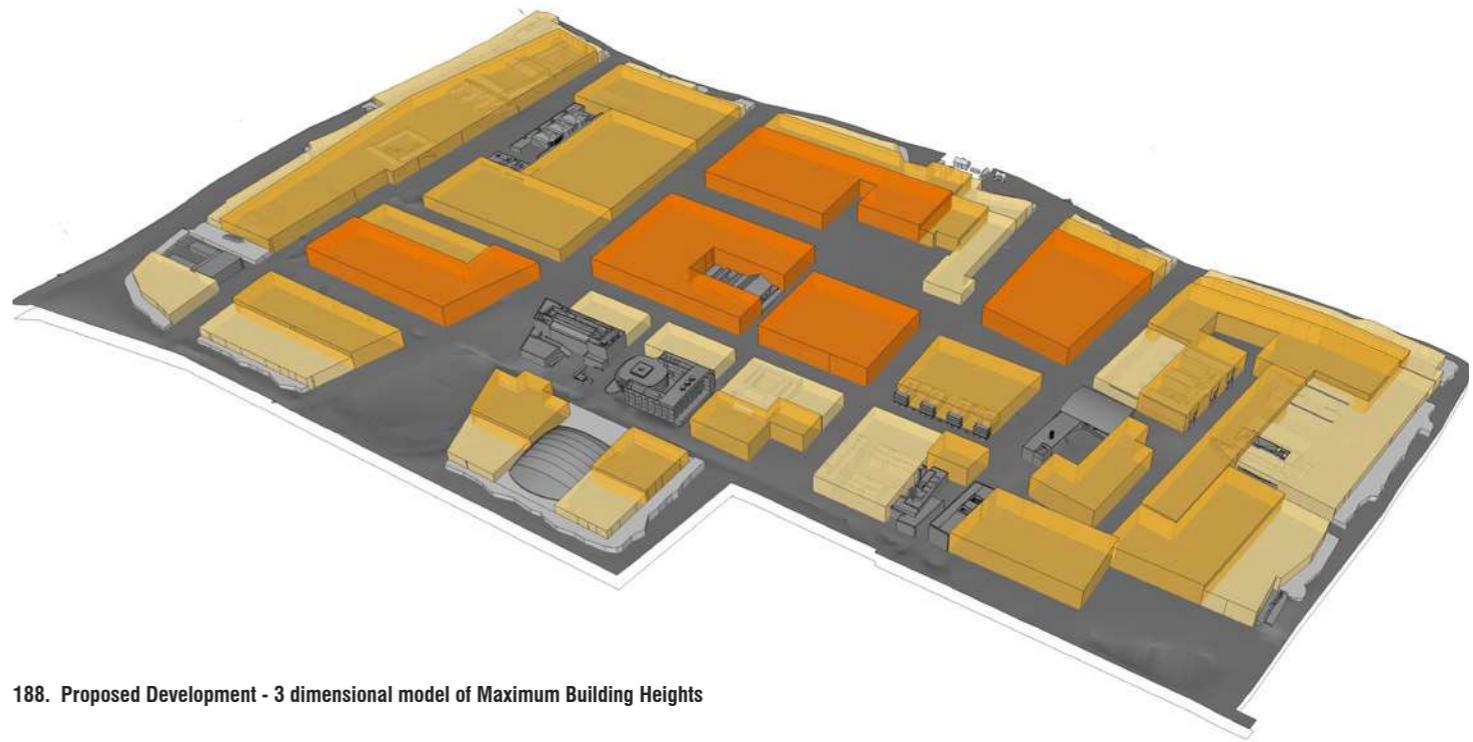
186. Design Principles - Massing, views and landmarks



187. Existing consented masterplan - heights



188. Proposed Development - 3 dimensional model of Maximum Building Heights





190. View of Development from the South

Height parameters - views assessment

5.1.17 Maximum Building Heights have been thoroughly tested through the Landscape and Visual Impact Assessment process reported in the environmental Statement submitted in support of the planning application.

5.1.18 Each pair of views (key views 01, 07 and 06 from the LVIAs) shows the existing view followed by the maximum height parameters for the proposed development derived from Parameter Plan 05.

5.1.19 The following images show the proposed heights parameters in comparison to existing.

5.1.20 Proposed development parameters relate well to the existing development on the site and sit below the tree belt as viewed from the south west (view 01, Figures 191 and 192). View 07 (Figures 193 and 194), shows that the parameter heights have a good relationship to the woodland buffers along this site edge. This woodland is immature and will over time increase in scale as setbacks and buffer spaces have been provided to ensure this woodland edge can reach maturity.

5.1.21 View 06 (Figures 195 and 196) shows the view from the east. The Parameters show an almost unbroken maximum development height, however in reality this will be broken by the east-west cycle route and the existing buildings that are lower in height. The parameters heights are required in this location to provide flexibility for the proposed development.

5.1.22 It should be noted that the visualisations generated from the maximum heights parameters generate an impossible worst case, as the amount of development for which permission is sought is not sufficient to completely fill the parameter envelopes as illustrated here.



191. Existing view - key view 01



192. Maximum Proposed Building Heights - key view 01



193. Existing view - key view 07



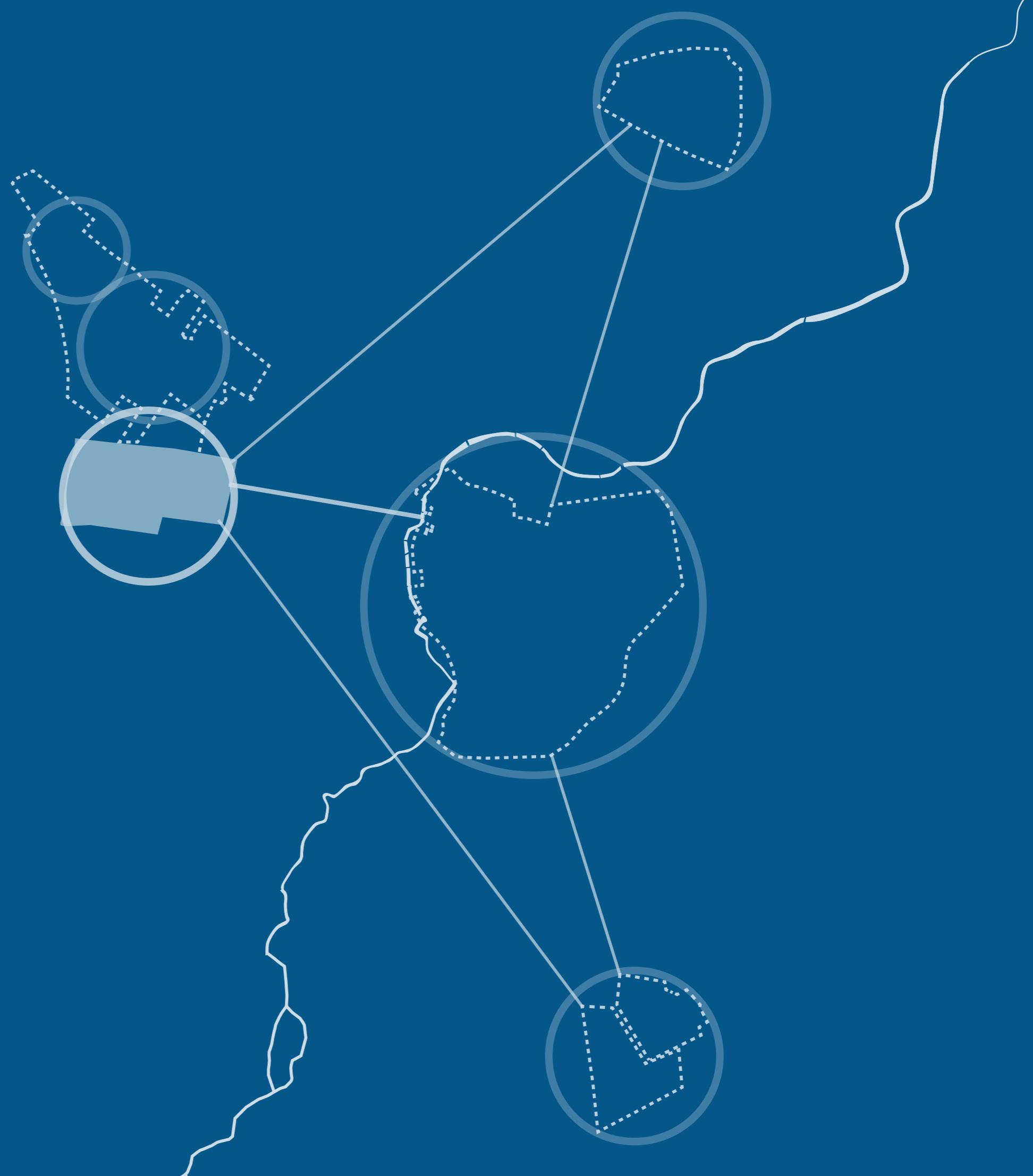
195. Existing view - key view 06



194. Maximum Proposed Building Heights - key view 07

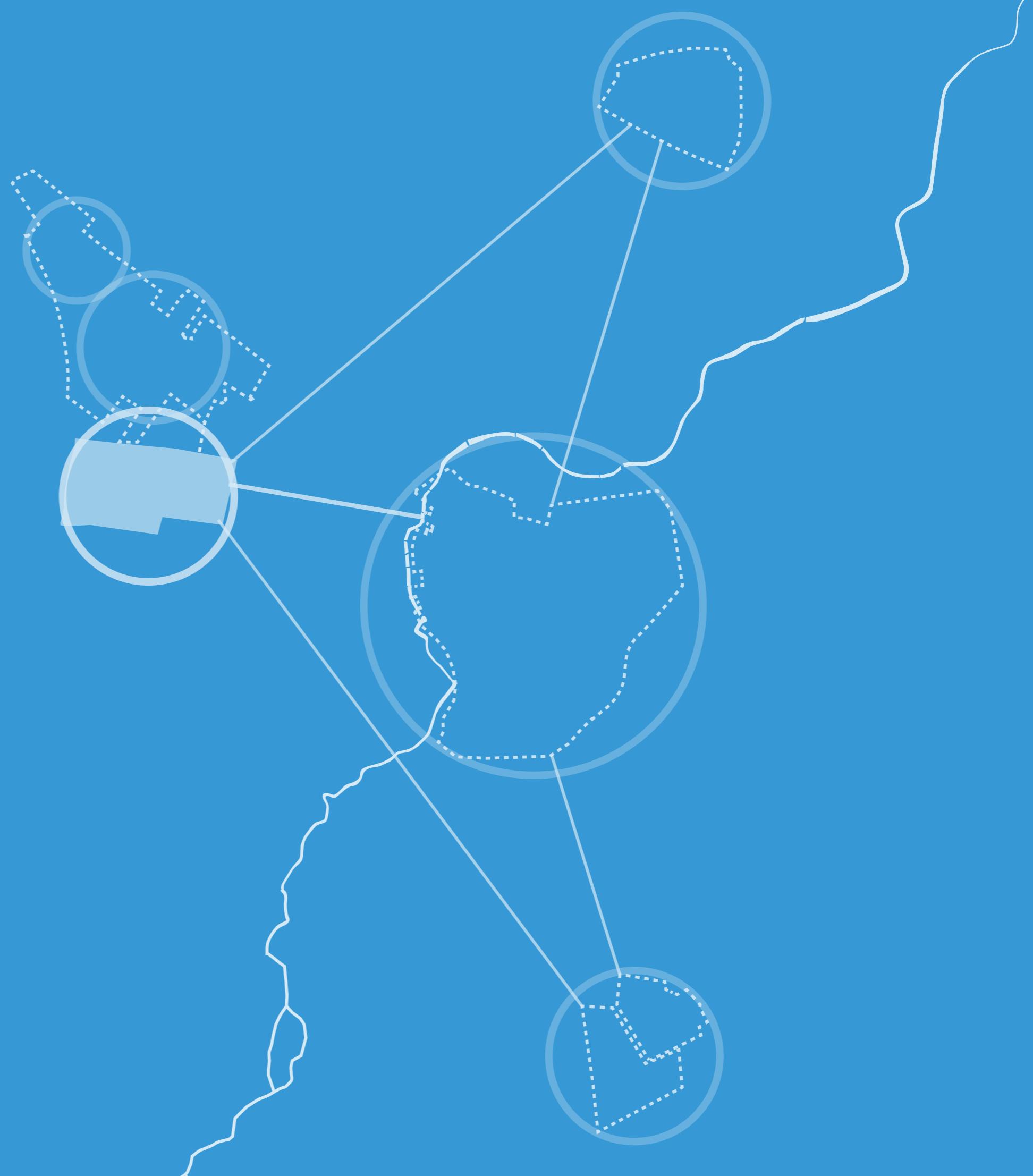


196. Maximum Proposed Building Heights - key view 06



**ILLUSTRATIVE
MATERIAL**

VOLUME B



ILLUSTRATIVE DESIGN PRINCIPLES

B1

B1 Illustrative design principles

- Connectivity**
- Character**
- Community and open space**
- Climate**

Key issues:

- Distribution of Land uses
- Amount of Development
- Layout and Scale
- Landscape
- Appearance, and Access

B2 Illustrative masterplan

B3 Transformation of key spaces

6. ILLUSTRATIVE DESIGN PRINCIPLES

6.1. Urban and landscape structure

Layout and structure

6.1.1 Key to the new masterplan is the need to transform the existing character and identity of West Cambridge and to introduce a new legibility throughout the site. A new urban and landscape structure has been overlaid on the site incorporating existing spatial elements and forming a series of new spaces.

6.1.2 The landscape structure for the masterplan forms a 'weave' of north-south and east-west running landscape and open space elements, that serve to strongly connect and knit together the West Cambridge site.

Transformation of existing elements

6.1.3 The masterplan retains existing roads and green infrastructure and reinforces elements from the consented masterplan such as the East and West Forum spaces. These two spaces remain the primary public spaces within the site, but they are now reinforced and connected with a better defined Charles Babbage Road (Forum Link).

6.1.4 The existing primary streets: Charles Babbage Road, JJ Thomson Avenue and High Cross, plus the Western Access/Ada Lovelace Road are retained and their characters transformed.

6.1.5 Along the Coton Footpath and the Southern Ecological Corridor, water and wetland habitats are retained and increased and the East Pond is incorporated into this new space.

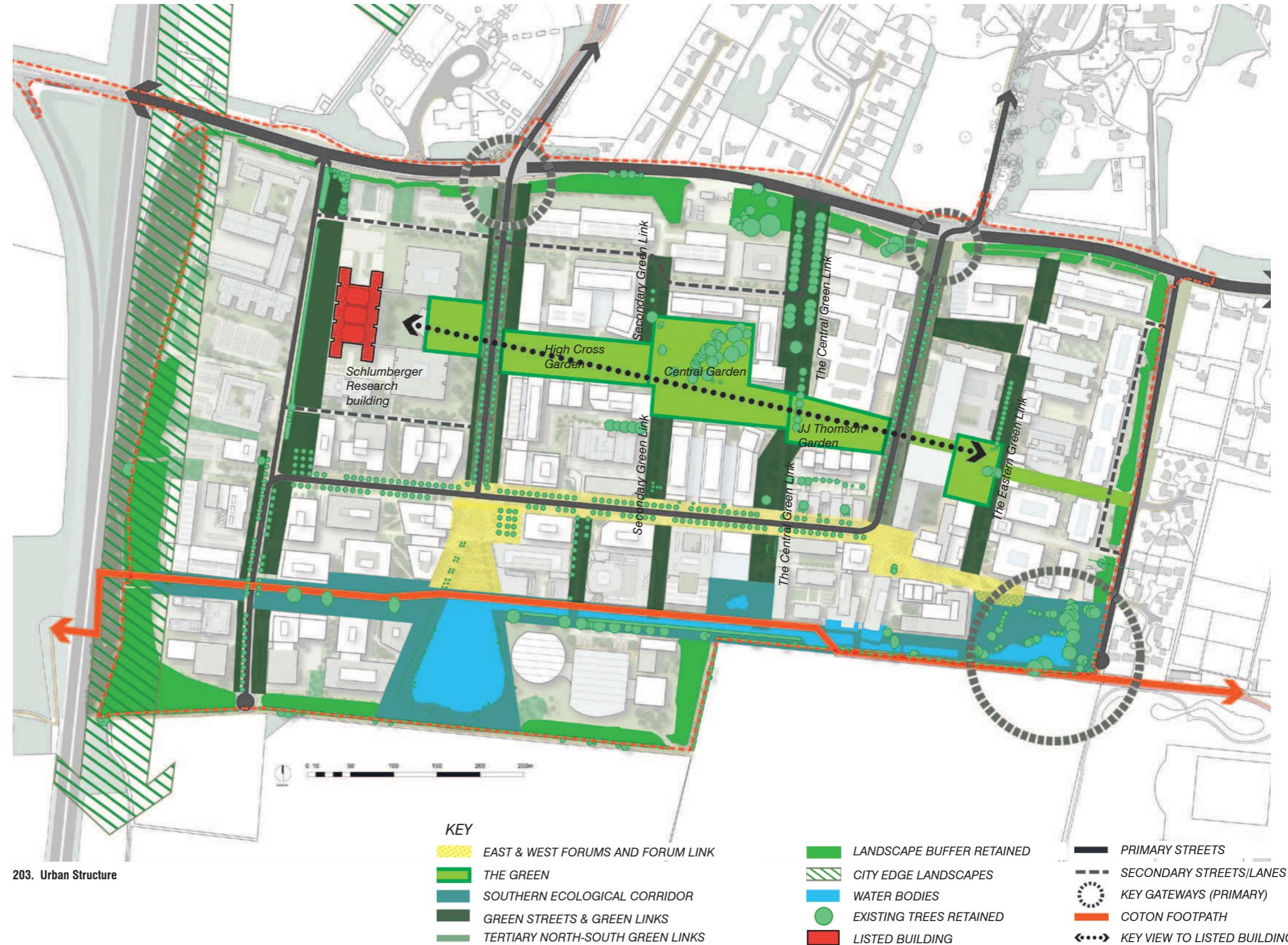
6.1.6 The existing woodland buffers which frame the site along the majority of its edges will be protected and enhanced. From Madingley Road, the buffer will be reinforced to ensure that views into the site will be limited to the key access points.

6.1.7 New development is located around existing spaces and streets to form enclosure and overlooking to all key open spaces, providing a more coherent urban realm.

Introduction of new elements

6.1.8 The major new public open space will be The Green - a chain of gardens running east/west that serve as a new open space. This space is orientated to ensure that a key view is opened up across the site from JJ Thomson Avenue to the Listed Schlumberger Research building roof structure.

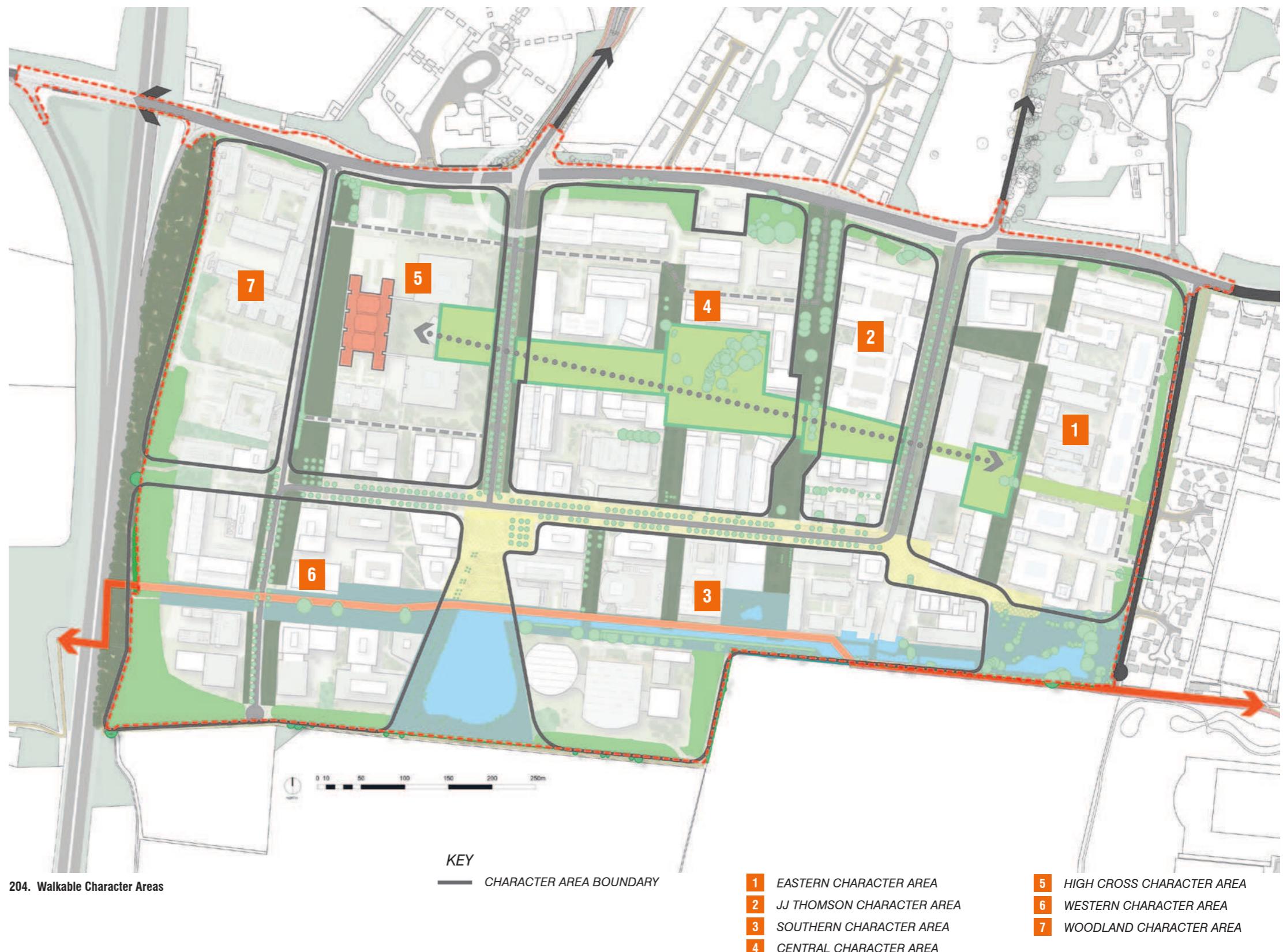
6.1.9 Pedestrian orientated Green Links are introduced throughout the site that create pedestrian & cycle routes linking the site north to south.



Walkable character areas

6.1.10 The arrangement of primary streets and the open space structure help to form a series of identifiable, pedestrian friendly building zones each with their own urban character. The site has seven of these character areas, defined by existing and new streets and spaces, each incorporating a public, pedestrian space. Each of these spaces is connected to and forms part of the wider network of open space and movement corridors that weave through the site. The seven character areas or clusters are:

- 1. Eastern:** Its central space is the Eastern Green Link running from north-south from the East Forum to a new Arrival Square in the north. This Eastern Green Link is at present an access road, and will be transformed to become a pedestrian orientated space which will connect and bring together the new and existing buildings within this area;
- 2. JJ Thomson Avenue:** This smaller area contains a new building for the Department of Physics – the Cavendish III Laboratory – and a shared facilities building to the south. The area is formed around the JJ Thomson Garden, part of The Green open space, which will run east-west across the site between High Cross and JJ Thomson Avenue once complete;
- 3. Southern:** This area contains a high proportion of existing buildings, including academic and residential buildings and the Sports Centre. These will be supplemented by new shared facilities buildings and the Entrepreneurship Hub and will form new frontage and provide new enclosure to Charles Babbage Road;
- 4. Central:** This area will contain a mixture of academic and commercial uses. The key space for this area is The Green open space that will visually and physically connect the site;
- 5. Western:** This area provides the main commercial focus of the development and contains the majority of proposed new commercial space. The Character Area forms the frontage to the West Forum;
- 6. High Cross:** This area incorporates the Schlumberger building and allows for any future intensification or extension. This area is very prominent with a frontage to High Cross and is visible from The Green and from the approach from the North West Cambridge Development;
- 7. Woodland:** This is a lower density character area in the west incorporating existing buildings and the woodland edge landscape.



East/west structure: Key places

6.1.11 The transformation of place relies on the creation of new landscapes and spaces and the retention of existing primary spaces.

6.1.12 The existing spaces of the East and West Forums and the Southern Ecological Corridor are retained and reinforced by new active development and planting. The East and West Forums are connected by an invigorated Charles Babbage Road - the Forum Link.

6.1.13 These spaces together with the new east-west chain of Gardens - The Green - are the four key open spaces within the new landscape structure for the site. These key spaces run across the site and serve to visually and physically connect the eastern and western parts of the Site. The Green specifically allows views to be opened up to the Listed Schlumberger Research Building.

6.1.14 These four spaces are the key elements of the open space structure and, with their diverse characters, will contribute to a variety of environments and experiences throughout the site.

6.1.15 West and East Forums will be the social focal points of the site and will each form a series of connected urban spaces, terraces and squares. The Green and the Southern Ecological Corridor are more landscaped and provide usable green open spaces as well as important east-west pedestrian and cycle connections.

6.1.16 More detail about these key spaces is provided in section B3 of this Volume.

6.1.17 The woodland buffer to the south and to the north along Madingley Road will be retained and reinforced where necessary. Both will form a visual and spatial containment for the site.

6.1.18 With the retention of the northern woodland buffer the character of Madingley Road, a key approach road to the city of Cambridge will retain its existing agrarian character.



205. Key Places - primary open space structure running east to west

North/south structure: Streets and Green Links

6.1.19 Diagram 200 shows primary north-south streets and Green Links. These serve to weave together the east-west key places and spatial elements described on the previous page.

6.1.20 These spaces also provide the key access points into the site and connect to existing and new developments in the north, including the North West Cambridge Development.

6.1.21 These links also provide a direct visual connection between the site and the southern countryside, especially from the high points located along Charles Babbage Road.

6.1.22 Existing streets are retained and transformed to ensure a green character, including: JJ Thomson Avenue; High Cross; and the Western Access/Ada Lovelace Road.

6.1.23 New Green Links are formed through the transformation of existing tertiary streets and access roads (Central and Eastern Green Link) and an additional Green Link can be formed within the central area of the site.

6.1.24 A few of the existing streets and access lanes are already landscaped: along Western Access Road there is existing mature hedges; High Cross and JJ Thomson Avenue are tree-lined avenues and the original Vet School approach (Central Green Link) has mature lime trees.

6.1.25 In contrast, the southern part of the Central Green Link is a narrow service lane and the Eastern Green Link is formed from a car dominated road serving car parking and building drop-offs.

6.1.26 The new landscape framework connects and transforms these types of spaces to form coherent, cycle and pedestrian orientated Green Streets and Links.

6.1.27 Again, the eastern and western woodland buffers are retained and reinforced to ensure visual containment for the site and to retain an agrarian character.

6.1.28 More detail about Streets and Green Links is provided in the third section of this Volume.



206. North South running Green Links and transformed existing streets

6.2. Connectivity

Walking and cycling

6.2.1 The masterplan aims to encourage walking and cycling to, from and within the West Cambridge site. The masterplan strengthens the existing network by extending the NWCD strategic pedestrian and cycle network into the site and connecting it to the Coton Footpath, which provides strong cycle links to the city centre and other academic sites in the west of the city. Within the site there will be a network of cycle routes that bring cyclists through the site. The proposed strategy consists of:

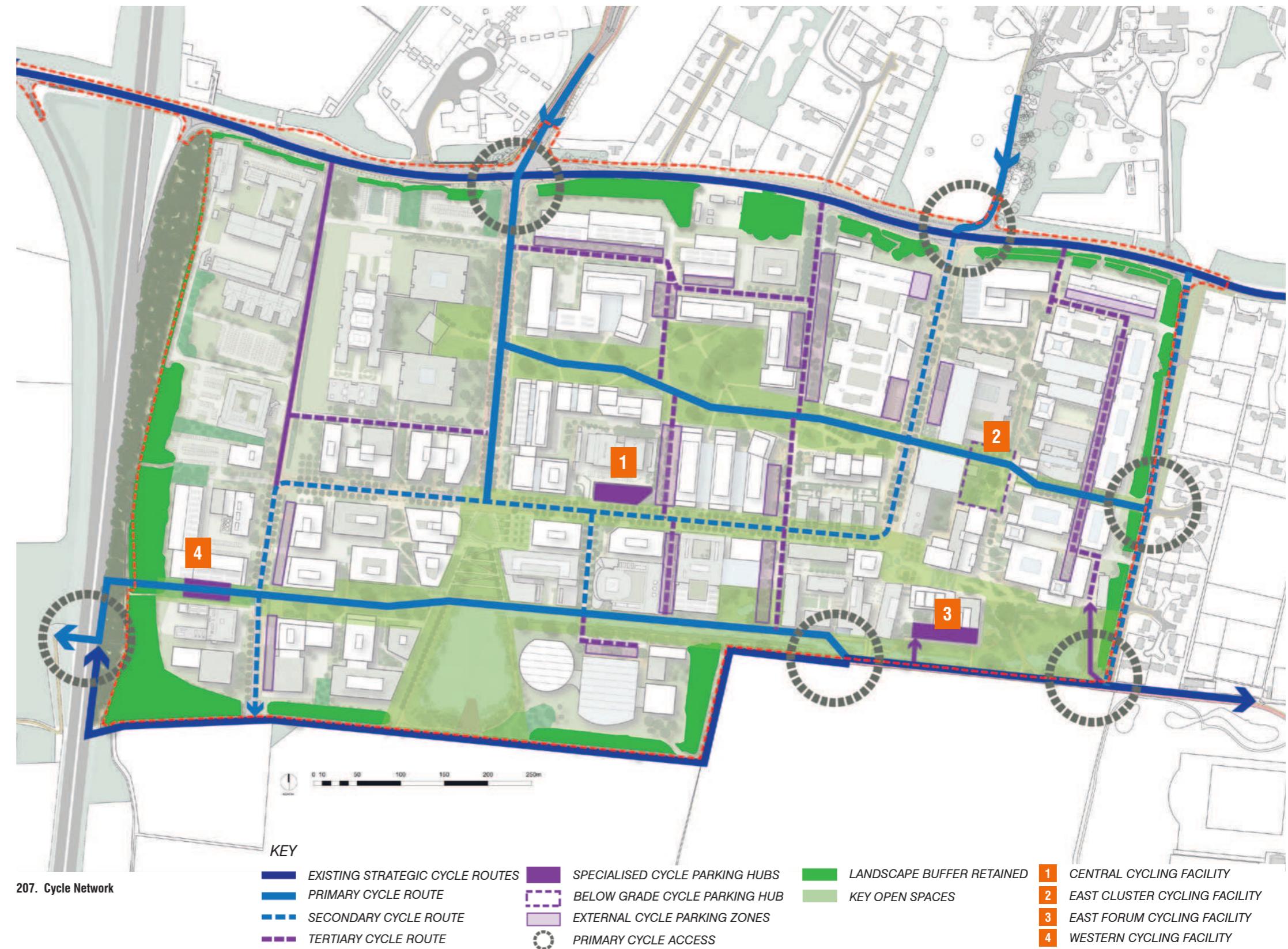
- Primary routes: these connect to the existing strategic cycle network (Coton Footpath and NWCD network) and are expected to be primary routes for arrival to the site, but also used for transit through the site;
- Secondary routes: along the existing tertiary street network and connecting with the Coton Footpath;
- Tertiary routes: which provide a finer grain of connections through the site and allow cycle access adjacent to most buildings.

6.2.2 The cycle parking strategy consists of three types of parking facilities. Within the site, there are four Cycle Hubs which provide fully enclosed, secure parking, as well as facilities such as showers, changing rooms, storage lockers and potentially cycle repair, coffee points and delivery services. These would contain 500-1000 spaces each and have been located along primary cycle routes. A free standing facility on Charles Babbage Road is potentially deliverable from the outset, with potential for other large facilities to follow as part of Department of Engineering cluster in the east and part of shared facilities provision at East Forum in second phase. The Western Facility is envisaged to serve the commercial research areas in the west.

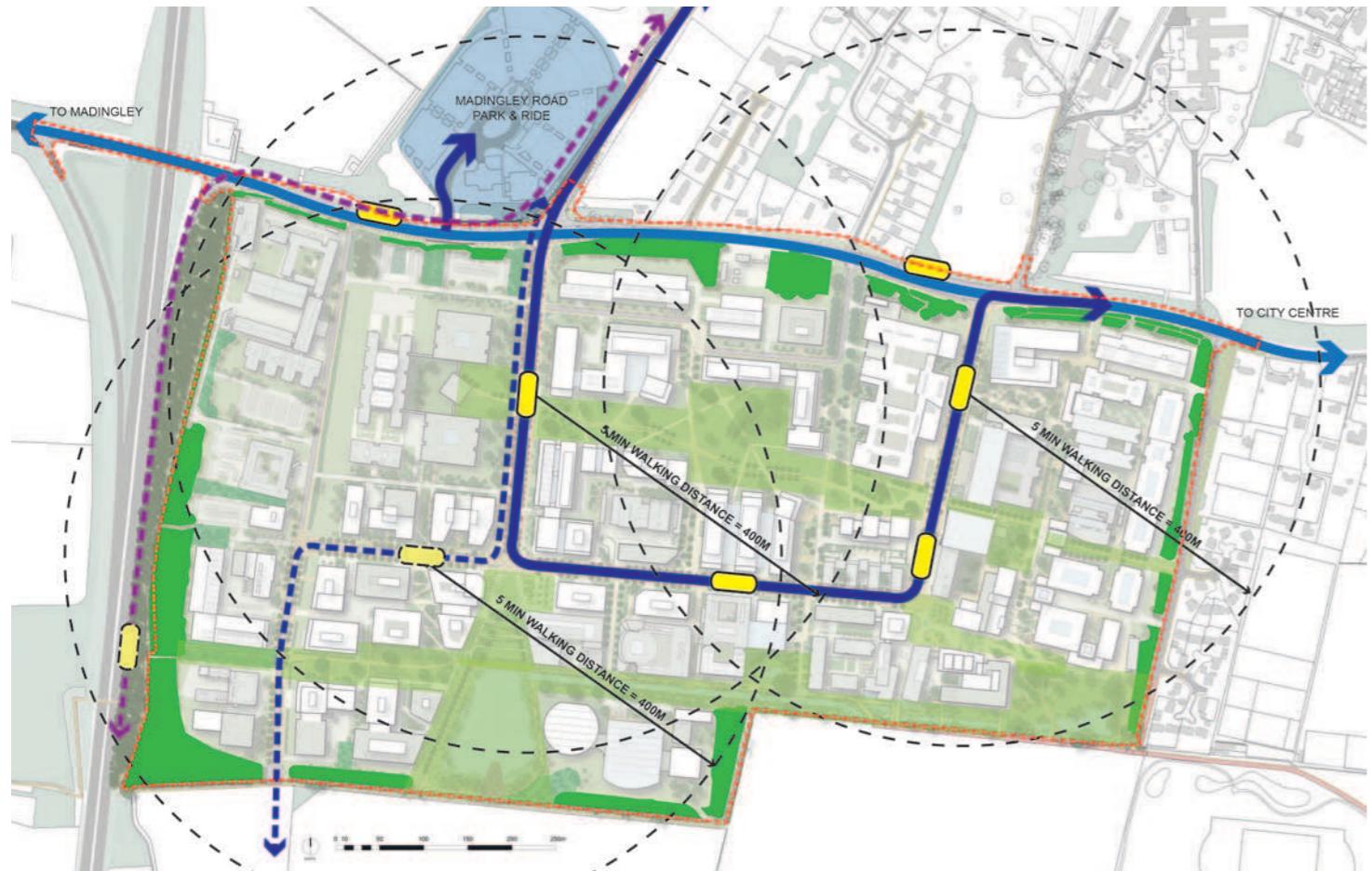
6.2.3 For short-stay cyclists, covered cycle parking areas have been distributed within the public realm close to points of arrival and key buildings. Each containing 50 -200 spaces, these have been located just off primary cycle routes.

6.2.4 Enclosed, secure cycle parking will also be provided on plots, as part of individual developments.

6.2.5 The estimated amount of cycle parking within the illustrative masterplan has been based on a generic ratio of 1 cycle parking space per 30sqm of commercial research and 0.7 parking spaces per student (of total student population) and 0.5 parking space per University staff member. The assumptions used match standards for the NWCD and exceed local Cambridge City guidelines.



Public transport



208. Public Transport

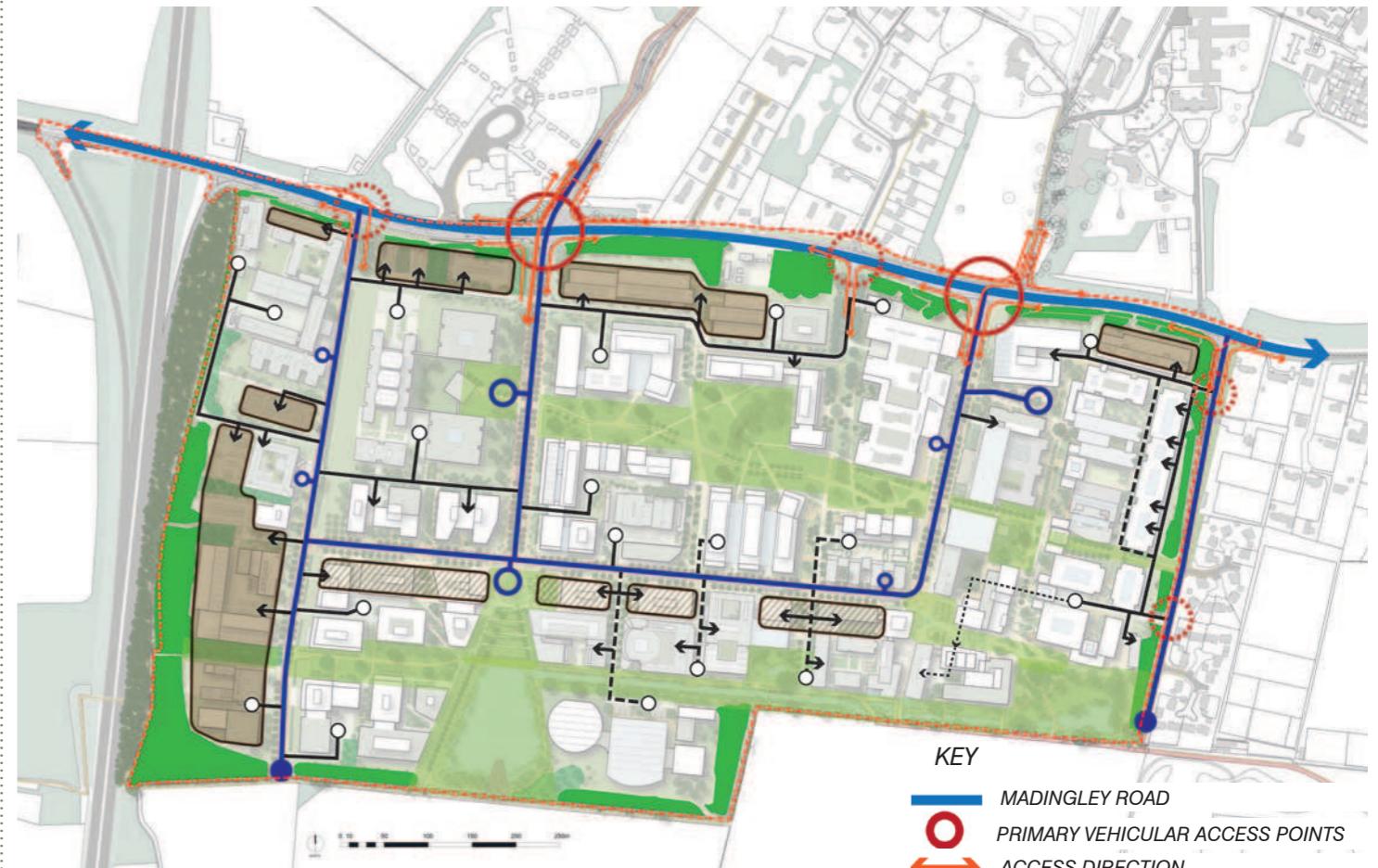
6.2.6 The main public transport improvements proposed include:

- Increased frequency of the Universal bus service to every 10 minutes and revised route to include a direct service to Cambridge Rail Station, at least every 20 minutes, as well as to Addenbrooke's Hospital;
- Enhancement of Citi 4 services to every 10 minutes, with a route revision to serve West Cambridge, at least every 20 minutes;
- A significant enhancement of the Arc Service proposed for North West Cambridge - with increased frequency and higher quality vehicles, the service being extended from West Cambridge, via the M11 motorway to Trumpington Meadows, the Biomedical Campus and Addenbrooke's Hospital. This will provide links from West Cambridge to Chesterton Rail Station, North Cambridge, and South Cambridge.

KEY

- MADINGLEY ROAD BUS ROUTE
- EXISTING PARK & RIDE
- BUS ROUTE
- POSSIBLE FUTURE ARC ROUTE
- POSSIBLE INTERIM ARC ROUTE
- BUS STOPS (EXISTING)
- POSSIBLE FUTURE BUS STOPS
- LANDSCAPE BUFFER RETAINED
- KEY OPEN SPACES

Motor vehicular movement and car parking



209. Vehicular Movement

6.2.7 High Cross, JJ Thomson Avenue and Charles Babbage Road are retained as the primary motor vehicle circulation and access points into the site. From this network car drop-off areas, parking structures and service/tertiary streets are accessed. Secondary/tertiary site access points are located along Clerk Maxwell Road to allow direct access for servicing and car parking.

6.2.8 Car parking is concentrated into multi-storey parking structures located at the periphery of the site, thus helping to reduce traffic movements within the site. Smaller car parking areas in semi-basements are possible along Charles Babbage Road.

6.2.9 Key junction improvements would be established as part of the 'Adaptive Phased Approach' and could include:

- a potential later phase junction at the Western Access Road to intercept strategic movements, and provide direct access to the car parking in the western part of the site;

- a provision of increased flare lengths on the North West Cambridge and West Cambridge approaches of High Cross;
- an enhancement to the existing junctions at Clerk Maxwell Road and JJ Thomson Avenue; and
- creation of a new access by opening up the original Vet School entrance off Madingley Road.

Clerk Maxwell Road service access

6.2.11 The outline planning application proposes the use of two servicing accesses at any one point in time on Clerk Maxwell Road. Potential access points are identified as I-J (north), K-L (midway down) and M-N (south) on Parameter Plan 03 as part of the outline application. The University commits to only operating one of the two southern access points at any given point in time and has proposed wording of a condition to secure this.

6.2.12 The following sets out assumptions about the extent of vehicle usage of these servicing access points, based on assumptions around the relocation and growth of the Department of Engineering into the eastern part of the West Cambridge site.

6.2.13 In assessing any potential impact on any neighbouring properties a baseline position needs to be established. Although there are no residential properties fronting onto Clerk Maxwell Road, the road provides access to two Cul-de-sacs (Perry Court and The Lawns). In addition to these properties is 53 Madingley Road which fronts onto the main arterial route into and out of the city (Madingley Road). This dwelling is separated from Clerk Maxwell Road by well established planting and a footpath. Clerk Maxwell Road has well established vegetation along both sides of the road and is currently characterised by (uncontrolled) on-street parking on both sides of the road.

6.2.14 Clerk Maxwell Road itself currently accommodates around 190 car movements daily on the assumption that 95 on-street parking spaces are used. Although not all cars park towards the southern end of Clerk Maxwell Road, often cars in the southern half will drive down to Perry Court to turn before driving north (as the on-street parking restricts the possibility of turning before Perry Court), causing additional movements and disturbance for local residents.

6.2.15 In addition to this, behind the woodland buffer and bund within the West Cambridge site lie 270 parking spaces to the rear of the CAPE building and Roger Needham Building, which are accessed from JJ Thomson Avenue and 290 parking spaces that form the Park and Cycle Facility which is accessed from Clerk Maxwell Road. These spaces account for a large number of movements behind the bund each day.

Servicing to the east of the masterplan

6.2.16 The eastern part of the West Cambridge site is

likely to accommodate the relocation and growth of the Department of Engineering, which is currently located on Trumpington Road and currently accommodates around 27,000sqm GIA of Engineering floorspace. For the current operations on the Trumpington Road site there are, on average, 30 deliveries per day (150 deliveries per week). This comprises 25 deliveries, and 5 servicing contractors. Of these deliveries larger vehicles account for only 2 or 3 deliveries per week. The remainder are 'white van' or standard vehicle deliveries (all under 7.5 tonnes).

6.2.17 It is expected that this existing floorspace will move over to West Cambridge. The servicing numbers will move across also (See Figure 210: Table 1 - Line 1), and will be supplemented by deliveries from CAPE, Nano-science, and the Whittle Lab, all currently on the West Cambridge site and serviced from JJ Thomson Avenue (Line 3). The Roger Needham Building is assumed to be part of the redevelopment and therefore its servicing is included in Line 1. The masterplan allows for significant growth of the department, however this will not necessarily mean 100% increase in servicing. Some of this growth is to enable existing provision/operations to work in better, less cramped/constrained conditions. A factor of 50% growth in servicing has therefore been applied (Line 2).

6.2.18 Some buildings such as Whittle and buildings close to the East Forum will continue to receive some of the deliveries from JJ Thomson Avenue, and it is also likely that some of the buildings to the south could be serviced from a servicing lay-by space combined with trolley deliveries. A factor (Line 4) has been applied to remove these.

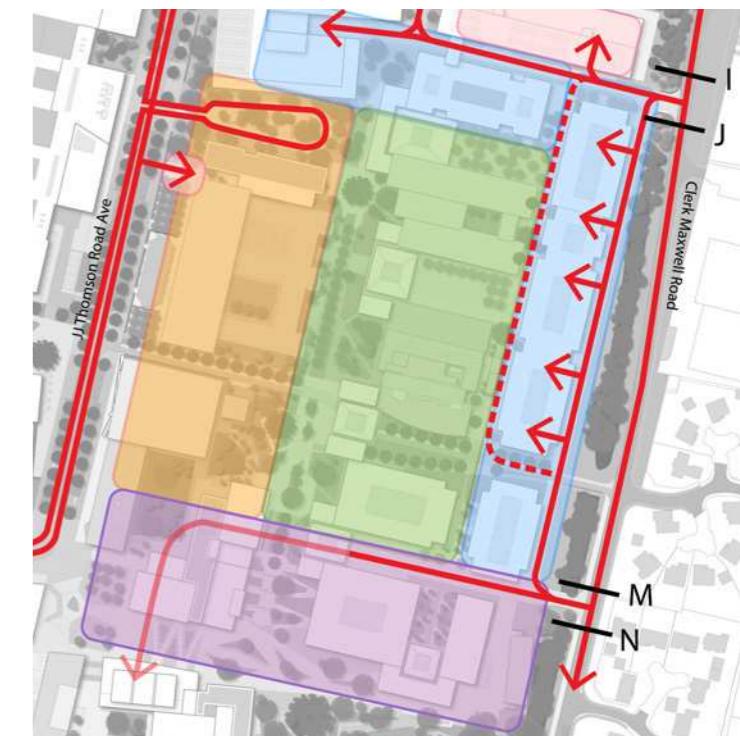
6.2.19 It is assumed that buildings in the blue zone will be accessed from the northern access (I-J) on Clerk Maxwell Road. All <7.5 tonne vehicles will enter and exit via access I-J. No <7.5 tonne vehicles servicing the blue zone will exit via the southern access (M-N). It is suggested that this could be enforced through the use of a physical restriction such as a bollard (or similar) which could be removed/lowered to allow >7.5 tonne vehicles to exit via the southern access (M-N). Large vehicles will need to continue southwards as there is no space within the blue zone to provide a turning circle for vehicles >7.5 tonnes. As such, vehicles >7.5 tonnes servicing the blue zone will be required to use the northern access (I-J) for entry and egress via the middle egress (K-L) or the southern egress (M-N) once it is delivered in association with the development of the purple zone. Use of either egress will

require vehicles to cross the east-west cycle link at point (K-L). It is proposed that a banksman will be on hand to manage the movement of all >7.5 tonne vehicle deliveries to ensure that there is no conflict between the delivery and pedestrians/cyclists (See Figure 211).

6.2.20 Buildings in the green zone will be predominantly serviced from Clerk Maxwell Road but with some deliveries able to come from JJ Thomson Avenue via the orange zone.

6.2.21 All buildings in the orange zone will be serviced from JJ Thomson Avenue.

6.2.22 Buildings in the purple zone will be serviced from access M-N and exit through the same point. The M-N access will be located to the south of the east-west cycle link. As such, there will be no conflict between vehicles utilising this access and pedestrians/cyclists on the link. All vehicles entering access point M-N will only serve the purple zone.



211. Service access to the east of the masterplan

Access point usage	Total	Access I-J	Access M-N
Total Deliveries p/w	328	246	82
<7.5 Tonne deliveries per week	321	241	80
>7.5 Tonne deliveries per week	7	5	2
Total Deliveries p/day*	65.6	49.2	16.4
<7.5 Tonne deliveries per day	64.2	48.2	16
>7.5 Tonne deliveries per day	1.4	1	0.4
Total Deliveries p/hr*2	6.54	4.92	1.64
<7.5 Tonne deliveries per hour	6.42	4.82	1.6
>7.5 Tonne deliveries per hour	0.14	0.1	0.04
Total	321	7	

*figure includes Civil Engineering

210. Table 1: Proposed servicing to the east of the masterplan

Access point usage	Total	Access I-J	Access M-N
Total Deliveries p/w	328	246	82
<7.5 Tonne deliveries per week	321	241	80
>7.5 Tonne deliveries per week	7	5	2
Total Deliveries p/day*	65.6	49.2	16.4
<7.5 Tonne deliveries per day	64.2	48.2	16
>7.5 Tonne deliveries per day	1.4	1	0.4
Total Deliveries p/hr*2	6.54	4.92	1.64
<7.5 Tonne deliveries per hour	6.42	4.82	1.6
>7.5 Tonne deliveries per hour	0.14	0.1	0.04

*1 assumes Mon-Fri *2 assumes 10 hours between 8am- 6pm

212. Breakdown of access point usage

Analysis

- The majority of deliveries are white van/ courier type vehicles. Vehicles over 7.5 tonnes only account for 2% of deliveries.
- The white van and courier delivery is not materially different in terms of noise impact than that of a normal vehicle.
- All of the delivery vehicles <7.5 tonne serving the blue and green zones will ingress and egress out of access I-J which will not cause a disturbance issue for residents in the cul-de-sacs which link to Clerk Maxwell Road.
- It is expected that on average 1.4 >7.5 tonne vehicle deliveries will be made each day. As a worst-case the noise assessment has assessed one >7.5 tonne vehicle delivery per hour which is significantly higher than the number of deliveries forecast. The results of the assessment confirm that there will be less than an adverse noise impact during the daytime on residents at The Lawns and Perry Court.
- Behind the central part of the bund the site currently accommodates 270 parking spaces to the rear of Roger Needham building (assume therefore potential for 540 daily movements). These will be replaced by 49 deliveries per day with similar vehicles (assume 98 movements) with an additional 1 delivery per day by a larger vehicle.
- Around 16.4 deliveries will use the M-N access per day. Assume also that the 1 >7.5 tonne vehicle will exit from M-N having entered I-J. This amounts to an average of 34.8 movements per day or 3.48 per hour using M-N. This is compared to the 190 movements per day associated with the (uncontrolled) car parking on Clerk Maxwell Road which will be displaced by the West Cambridge Scheme.
- Clerk Maxwell Road (access I-J) will also provide access to the proposed 540 space multi-storey car park. It is recognised that this will give rise to additional movements in comparison to the existing 290 space Park and Cycle facility. The vehicle movements related to the multi-storey car park have been assessed with regard to the properties at The Lawns and Perry Court. The assessment has confirmed that the sound levels associated with the proposed multi-storey car park are not likely to exceed the proposed Lowest Observed Adverse Effect Level (LOAEL) and are therefore considered acceptable (see Noise and Vibration Chapter of the ES Addendum).

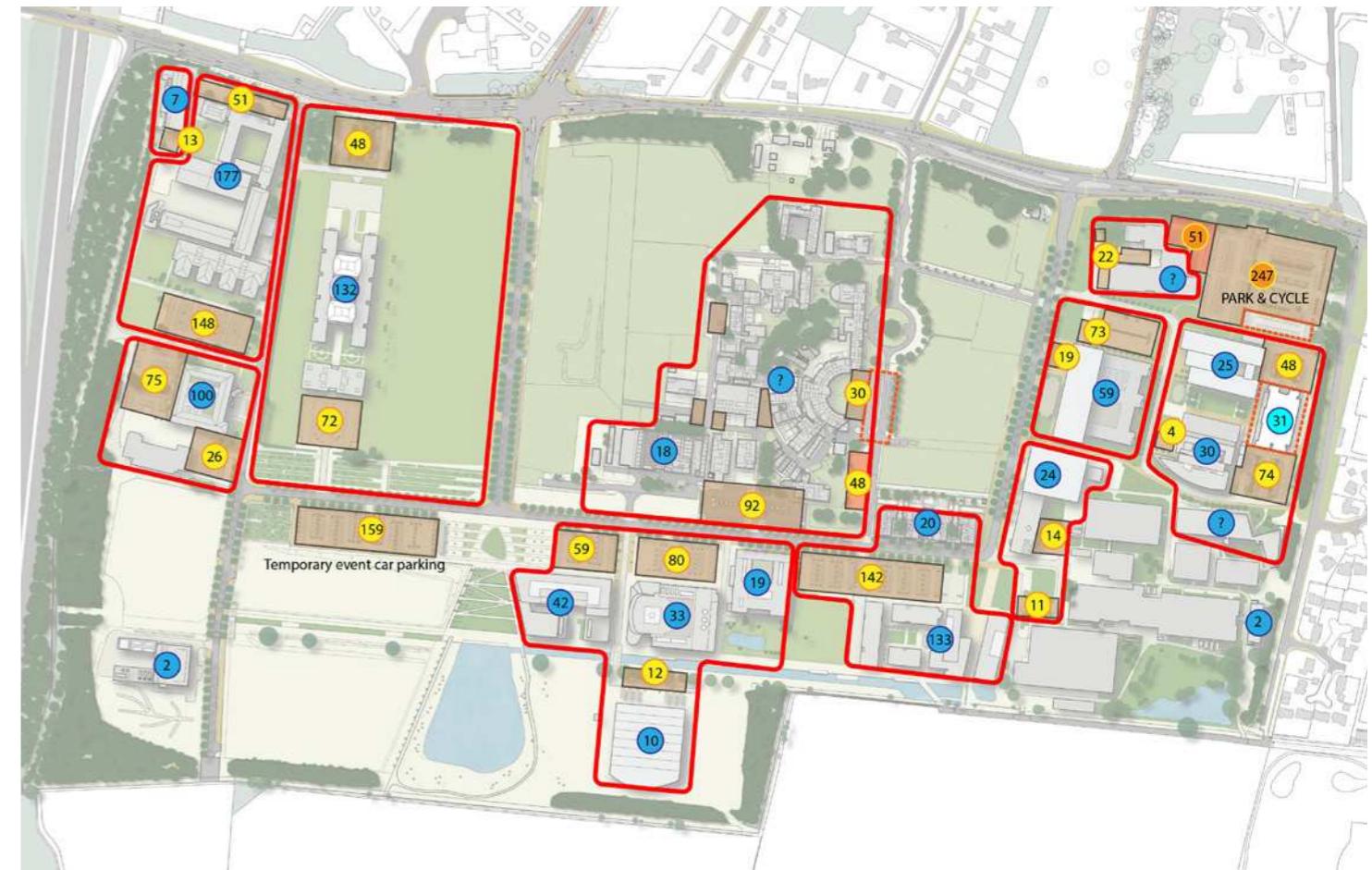
Interim parking condition

6.2.23 The gradual transformation of the site requires a strategy that involves the removal of existing surface parking areas in front of buildings, alongside the intensification of development and associated increase in population on the site.

6.2.24 The following pages and diagrams provide an illustration of an indicative process of development for the site and interim car parking conditions in the initial period of development, before there is enough development to trigger the construction of the multi-storey car parks proposed for the site.

6.2.25 The following diagrams show existing car parking areas with the number of spaces indicated in yellow circles. The estimated car parking requirements for each existing building is shown in dark blue dots and the parking requirements for new buildings are shown in lighter blue dots.

6.2.26 The proposed areas of car parking for the initial period of development consist of new temporary surface car parking, new surface parking areas that will remain through the redevelopment of the site and the multi-storey car parking structures.



213. Indicative Interim Car Parking for Phase 1A (2019)

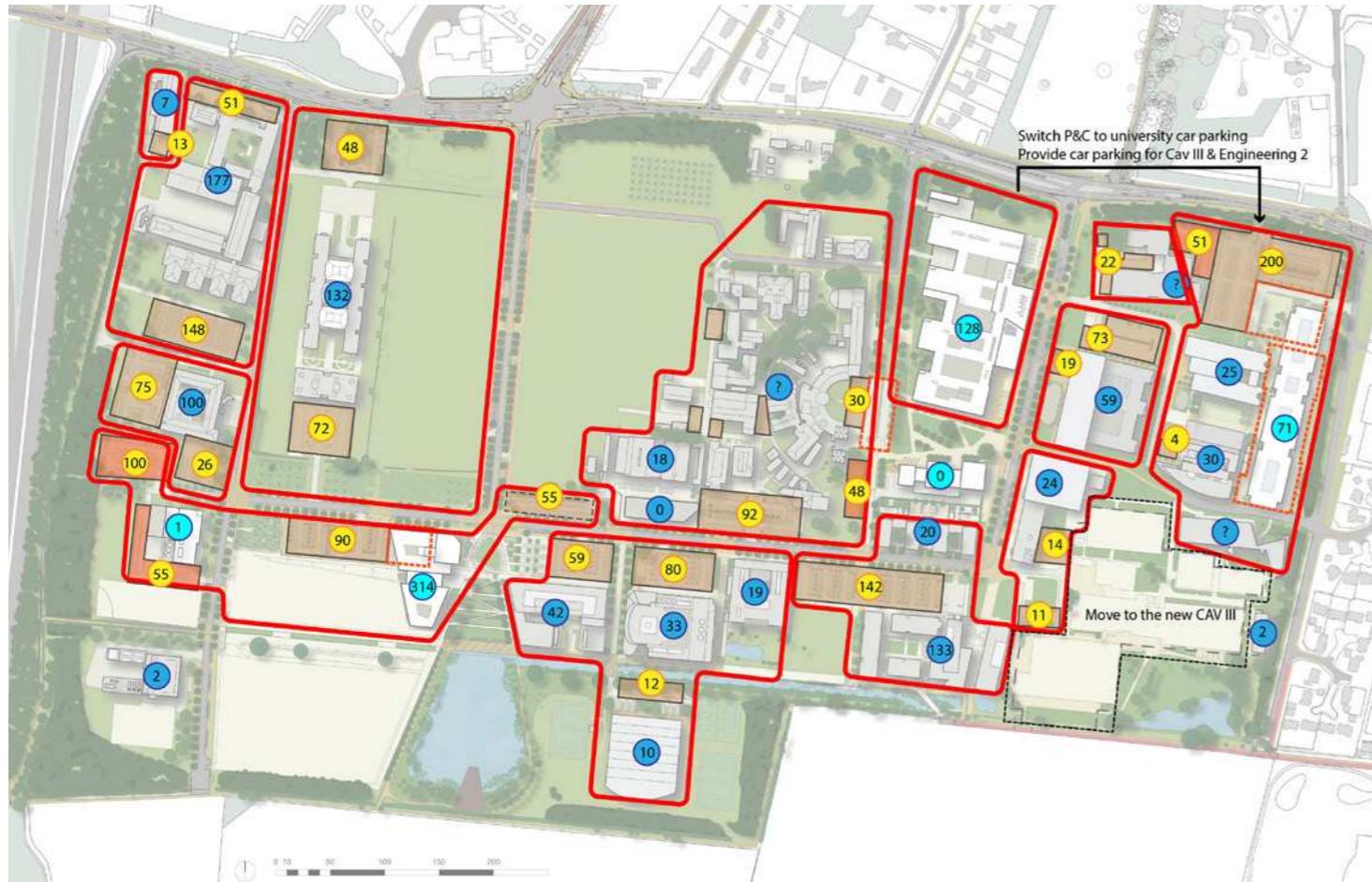
KEY FOR ALL DIAGRAMS

	CAR PARKING PROVISION
	CAR PARKING REQUIREMENTS
	NEW CAR PARKING REQUIREMENTS
	EXISTING AT GRADE CAR PARKING
	PROPOSED AT GRADE CAR PARKING
	PROPOSED MULTI-STOREY CAR PARKING
	PROPOSED BASEMENT CAR PARKING
	EXISTING CAR PARKING TO BE DEMOLISHED
	CAR PARKING GROUP

6.2.27 Phase 1A consists of the development of the first building for the Department of Engineering - the UKCRIC building, located on the eastern boundary of the site. This displaces some surface car parking, but the remaining provision can accommodate the additional requirement of 31 spaces for the UKCRIC building.

6.2.28 An area of the existing Park and Cycle will be lost due to the construction compound required for the UKCRIC building and this number can be re-provided as surface car parking adjacent to the Whittle Laboratory (additional 51 spaces). This means that the Park and Cycle car park can remain operational.

6.2.29 The existing Vet School car park in front of the Small Animal Hospital can be partially relocated to the south (as a temporary car park), to enable the construction of the proposed JJ Thomson Garden.



214. Indicative Interim Car Parking for Phase 1B (estimated 2021)

6.2.30 Phase 1B consists of the development of additional workshop/lab buildings along the eastern boundary of the site for the Department of Engineering. In addition, the Cavendish III Laboratory, the Shared Facilities hub, as well as JJ Thomson Garden will be developed to the west of JJ Thomson Avenue. Development also commences in the western commercial cluster adjacent to the West Forum.

6.2.31 The developments in the east require an additional 199 spaces but the development of more buildings for the Department of Engineering means that existing surface car parking areas are lost to the east of the site.

6.2.32 In addition, the development for the Department of Engineering means that more parking spaces within the Park and Cycle will be lost.

6.2.33 One way to accommodate the new car parking requirement would be to switch-off the Park and Cycle car park and turn the remaining 200 spaces to academic car

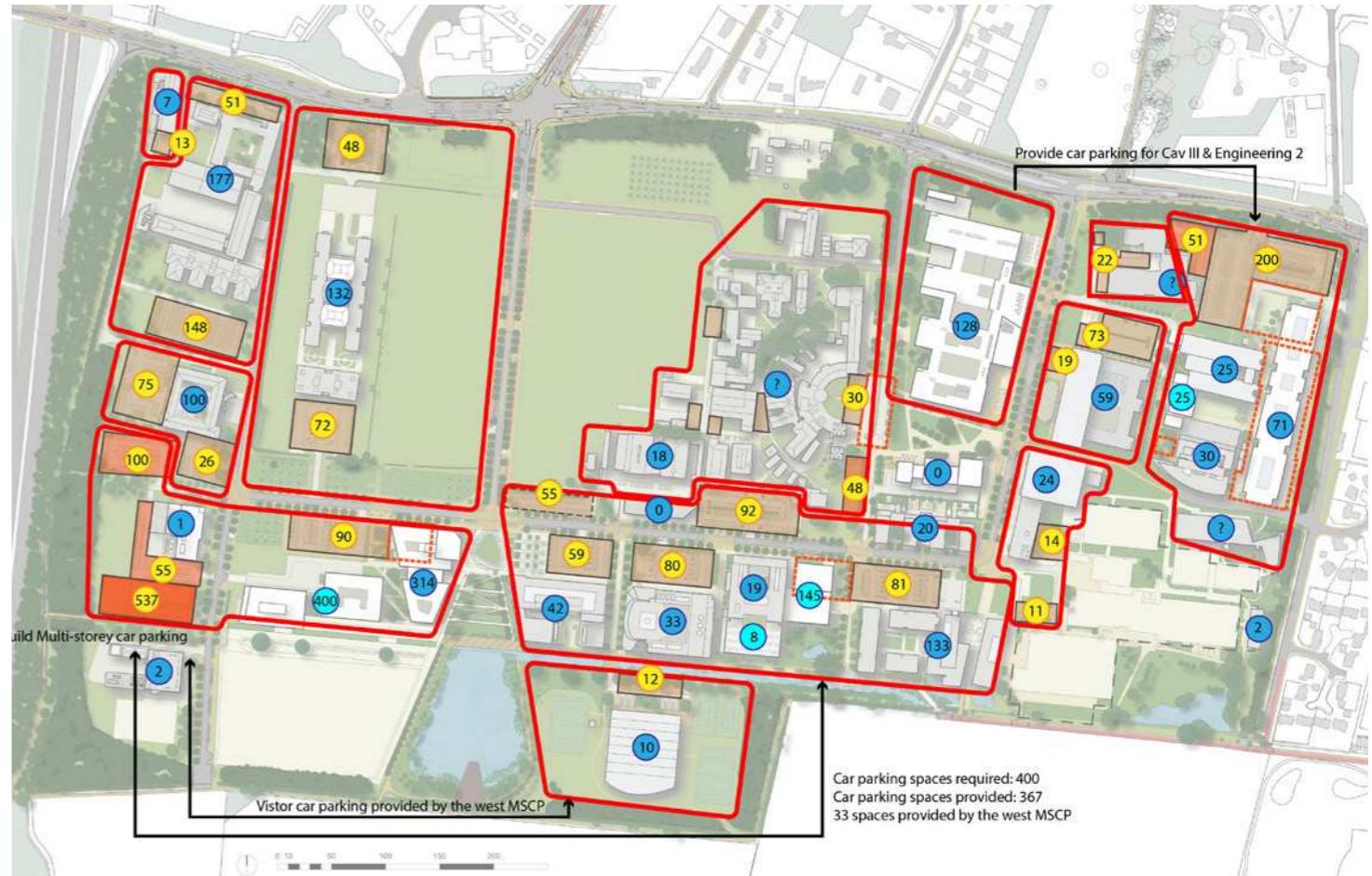
parking. This would mean that the multi-storey car park in the north-east would not be required at this stage.

6.2.34 An alternative would be to build temporary surface car parks to the north of the site to the east of High Cross.

6.2.35 Development commences in the western cluster and this commercial research development has higher parking requirements than the academic developments to the east of the site.

6.2.36 This development at the West Forum requires 315 spaces and these can be accommodated in a series of existing and new surface car parking areas in the west. The new parking areas will remain as surface car parks through the life of the development.

6.2.37 The existing events car parking to the south of the Charles Babbage Road will become parking for the new commercial uses.



215. Indicative Interim Car Parking for Phase 1C (estimated 2022)

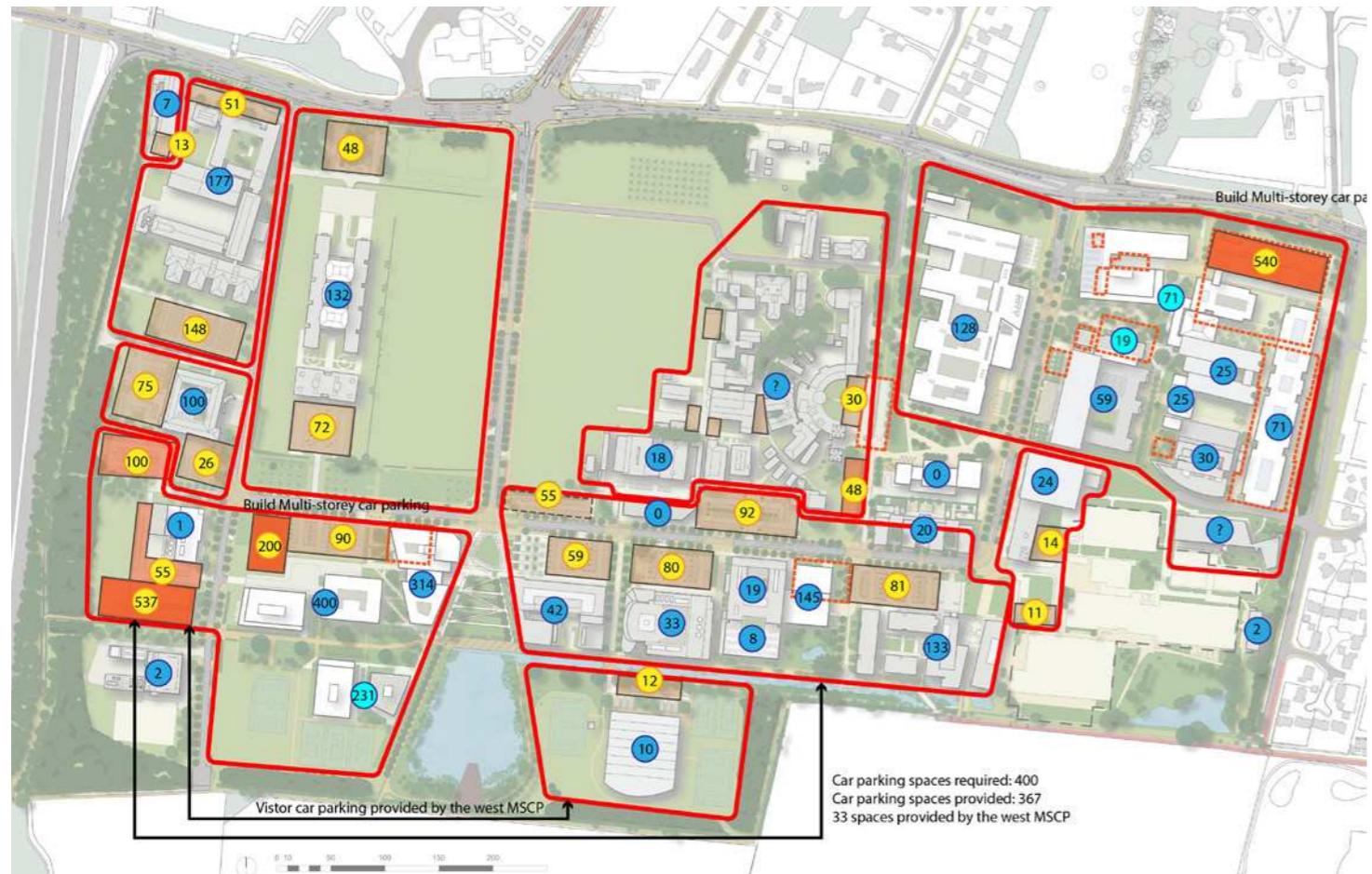
6.2.38 In Phase 1C, development is primarily focused in the western commercial cluster. Development in the east consists of one of the social hub buildings for the Department of Engineering and to the south an extension to the IfM Building on Charles Babbage Road.

6.2.39 The Engineering hub building requires 25 spaces and this amount can be accommodated in the existing configuration of surface car parks developed in the previous phase.

6.2.40 Development of the IfM extension requires 153 spaces and the development also means there is a loss of car parking along Charles Babbage Road. This means that the existing car parking area to north of Charles Babbage Road is required to serve this development.

6.2.41 Further development in the western cluster takes place in Phase 1C and this commercial development requires 400 spaces. This large amount triggers the first of the multi-storey car parks within the site to be developed, located to the south west of the site and accessed from Ada Lovelace Road.

6.2.42 This multi-storey car park will accommodate the shortfall of car parking within the central area around the IfM Building.

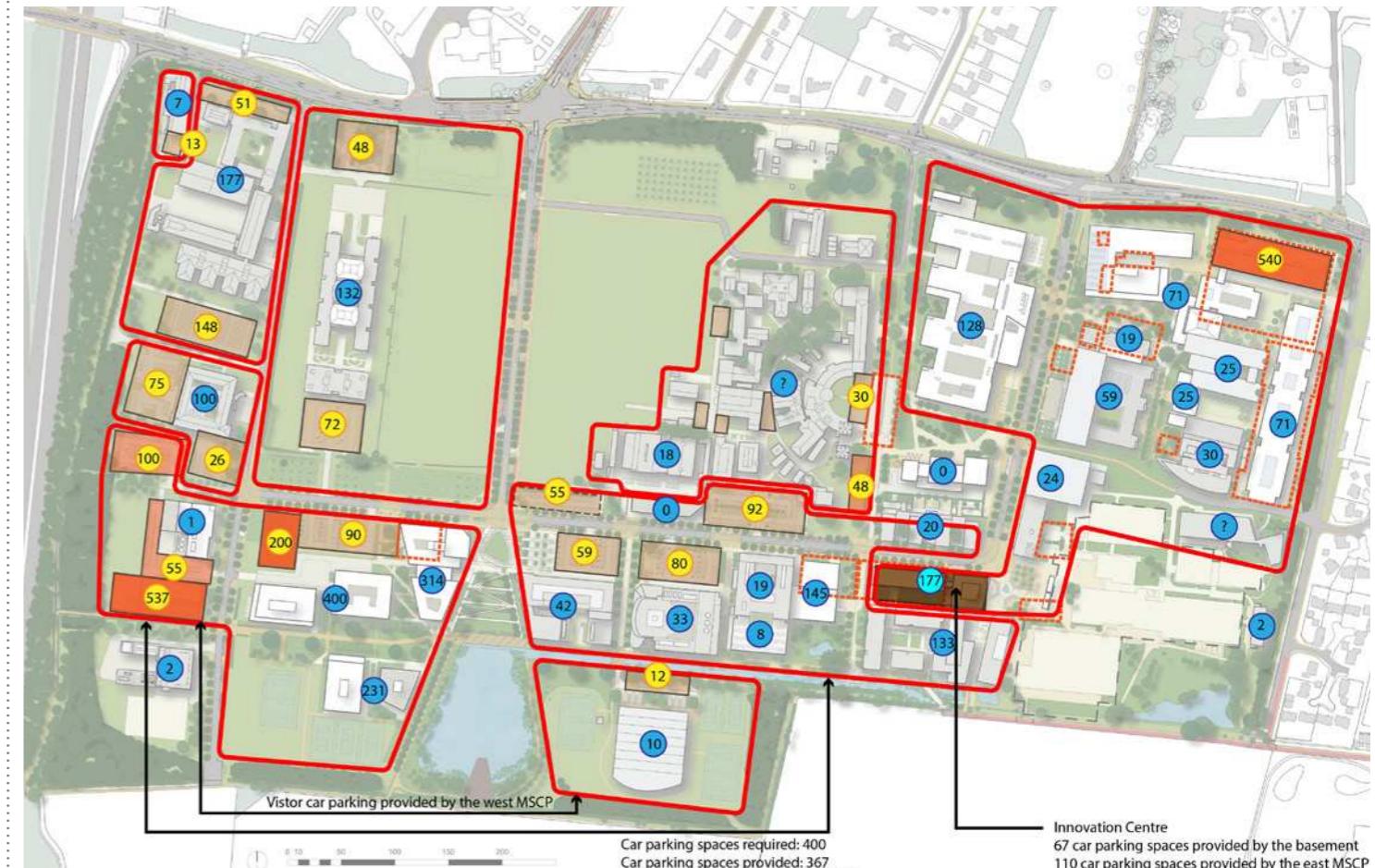


216. Indicative Interim Car Parking for Phase 1D (estimated 2025)

6.2.43 Phase 1D consists of the remaining Phase 1 development for the Department of Engineering, including the Whittle Lab extension, as well as an extension to the Computer Lab. There is further development of the commercial cluster at the West Forum.

6.2.44 Development to the east requires 90 spaces and will also mean further loss of area within the former Park and Cycle car park. At this point the development of the multi-storey car park in the north-east is triggered.

6.2.45 Further development to the west of the site requires 231 spaces and so a second multi-storey car park is required to be developed.



217. Indicative Interim Car Parking for Phase 1E

6.2.46 In Phase 1E the Innovation Centre is developed at the East Forum, and this triggers a high amount of car parking - 177 spaces. This can be accommodated in the multi-storey car park to the north-east as well as semi-basement parking underneath the new building (67 spaces).

6.2.47 In the future, the development of Phase 2 of the Department of Engineering on the former Cavendish Laboratory site, or any development within the central area of the site, will trigger the building of the multi-storey car parks proposed to the north of the site, and accessed from High Cross.

6.2.48 Future development in the south-western commercial cluster will require a further multi-storey car park to be developed.

6.3. Character

Land use

6.3.1 The character of the site - the distribution of land uses, scale, density and appearance - is informed by the wider context and character of this part of Cambridge; as well as Cambridge's and world-wide best practice precedents and the needs of current and potential future occupiers.

6.3.2 The key objective of the masterplan is to create an urban campus, a place where landscape and built form are balanced to create an optimal physical and social environment for collaboration and interaction.

6.3.3 The masterplan contains a mixture of academic and commercial research floorspace. While these uses are blended throughout the site, an academic-led focus is created to the east (around and extending from the East Forum) and a more commercial-led focus is located to the west at West Forum. The central area in particular, is a zone for future mix and flexibility between academic and commercial research uses.

6.3.4 As seen in the precedents presented in Volume A, such distribution of uses supports interaction between occupiers while maintaining a sense of identity and potential for growth for each of the clusters.

6.3.5 In order to promote innovation and interchange, small entrepreneurship hubs could be distributed across the site with the main entrepreneurship centre located at East Forum, reinforcing and expanding the existing uses within the Hauser Forum and Broers Building.

6.3.6 To enable informal interactions and further integrations, and also to enhance the focal role of East and West Forums, major shared/social facilities and active uses are located at the Forums ensuring that these spaces are active and vibrant. A further provision of smaller social hubs is distributed throughout the site, incorporating existing social spaces, closely associated with and addressing key public spaces.

6.3.7 To the south along the Southern Ecological Corridor is an area for sports and recreation, community facilities and outdoor amenity.

6.3.8 Diagram 218 shows one possible configuration of the distribution of uses.



Amount of development

6.3.9 Underpinning the masterplan is the need to increase density to create critical mass and optimise development capacity at the West Cambridge site.

6.3.10 Taking into account the land currently occupied by buildings which are to be demolished, over 380,000m² of additional development capacity has been identified through the masterplanning process.

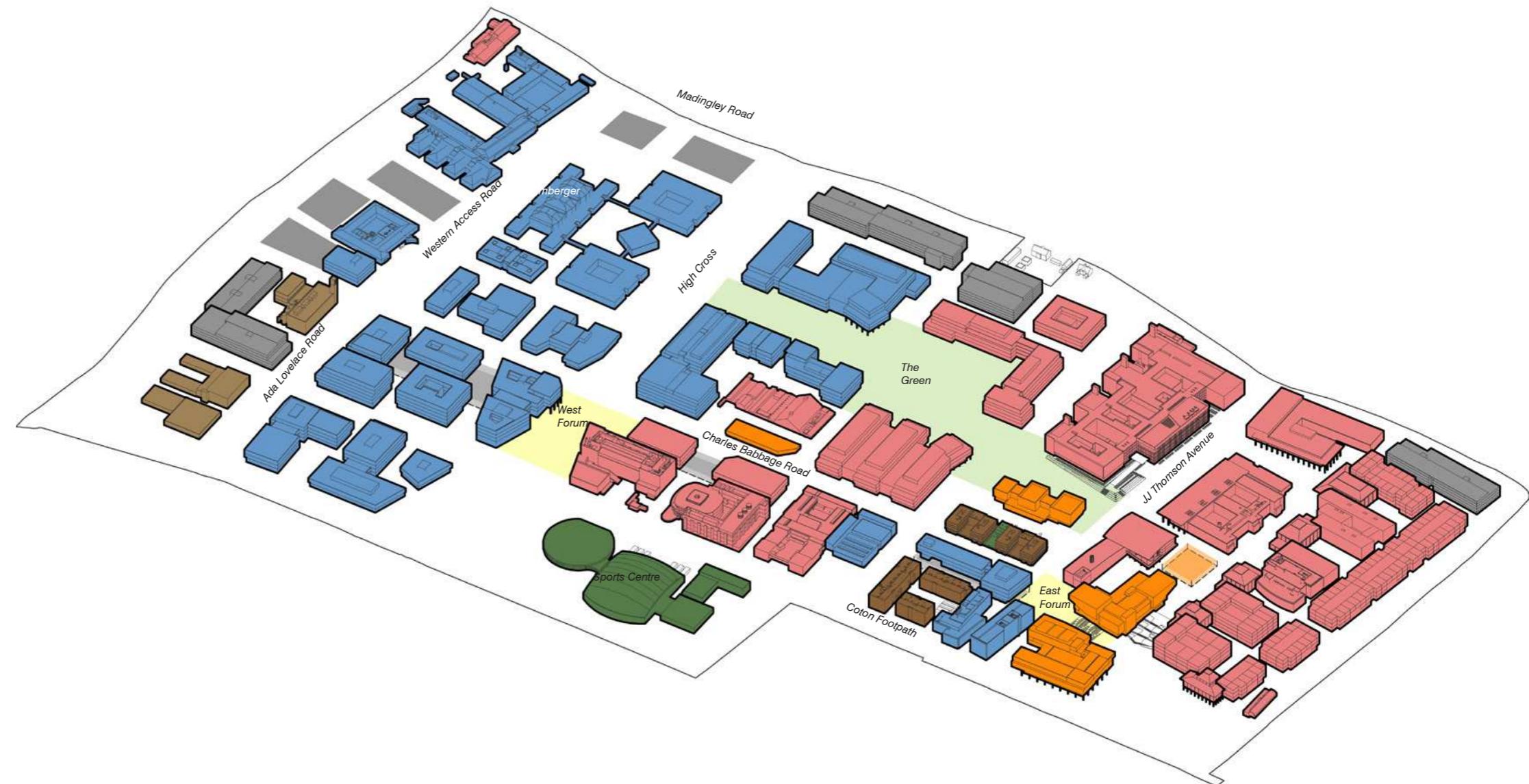
6.3.11 This amount follows from the premise of creating an urban campus. The optimal density for such environment has been identified at the Sidgwick site in Cambridge: three to four storey buildings with well defined but airy and sunlit open spaces in between.

6.3.12 The scale and overall amount of commercial research development accords with best practice models: both University Park at MIT and Chiswick Park in London show that a scale of around 200,000m² of commercial floorspace corresponds with a population which can form a community, support social facilities and bring activity to the public realm. The amount of academic development is proportionally higher to achieve an overall ratio of three to two, a balance which is seen to ensure that the overall character is set by the academic uses and not dominated by commercial research. The overall amount of commercial space is supported by market assessment and estimated to be absorbed within a 15-25 year span.

6.3.13 In addition, the amount of development on the site is also dependent on the capacity of the surrounding transport network and will increase incrementally, following gradual improvement in public transport and the introduction of a Green Travel Plan. These measures will be designed to achieve gradual decrease in car dependency.

6.3.14 Out of the overall 380,000m², academic research, teaching and shared facilities and commercial and/or research institute will comprise 370,000m². Within this capacity, commercial/research institute space will be limited to no more than 170,000m². Together with more than 100,000m² of academic and 40,000m² of existing commercial space, the overall balance of approximately 300,000m² of academic space and up to 210,000m² commercial space provides a good balance between the two major uses: a balance which allows for a significant commercial address but with a predominant feel of an academic research and teaching campus.

6.3.15 The illustrative masterplan shows a number and size of car parking structures sufficient to accommodate maximum numbers of car parking spaces used for testing of the surrounding transport network.



219. Land-use Strategy - an indication of how the development could be accommodated on the site.

Proposed development at West Cambridge of up to 383,300m² comprising:

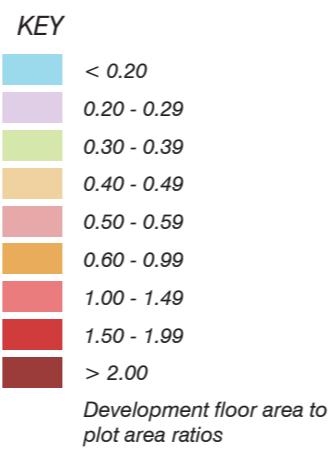
- up to 370,000m² of academic floorspace (Class D1), commercial / research institute floorspace (Class B1b and sui generis research uses), of which not more than 170,000m² will be commercial floorspace;
- up to 2,500m² nursery;
- up to 4,000m² of A1-A5 uses;
- up to 4,100m² floorspace for community facilities, and not less than 3,000m²;
- up to 5,700m² of sui generis uses;
- demolition of existing structures; and
- associated infrastructure including roads (including adaptations to Madingley Road), pedestrian, cycle and vehicle routes, parking, drainage, open spaces and earthworks.

KEY
■ ACADEMIC LED USE (D1)
■ ACADEMIC TEACHING AND SOCIAL SPACES (D1) (SHARED FACILITIES)
■ COMMERCIAL RESEARCH AND RESEARCH INSTITUTE USE
■ COMMUNITY USES
■ SUPPORTING / ANCILLARY USES
■ RESIDENTIAL
■ CAR PARKING STRUCTURES
■ SURFACING CAR PARKING
■ SEMI-BASEMENT/BASEMENT CAR PARKING

Density and critical mass



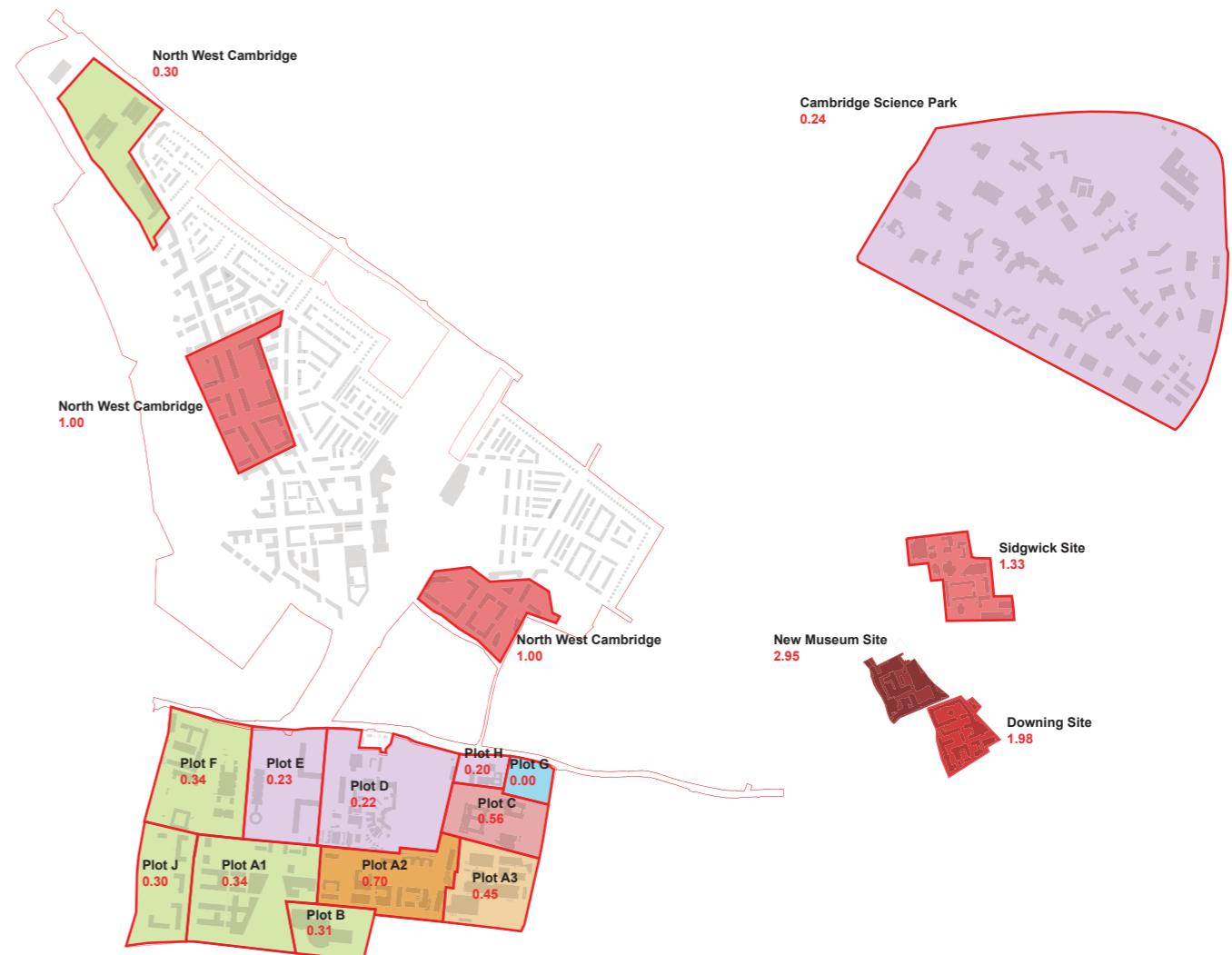
220. Design Principles - Density distribution



6.3.16 The density, expressed as floor area ratios, as indicated by the diagram above is based on the amount of development demonstrated within the Illustrative Masterplan. The existing density of the site is shown on the diagram on the right.

6.3.17 Generally, these diagrams show the proposed general increase in density across the site and also indicate that density is to be increased in a controlled way: with higher density located around the West and East Forums and lower density around the edges of the site. The density also shows a reduction in density towards the western edge of the site - the edge of the city.

6.3.18 The floor area ratios shown, ranging from 0.40 to 1.49, compares well to the densities of sites such as the Sidgwick site, judged to be a good precedent for an urban academic campus outside of a city centre.



221. Existing density distribution - for comparison

Scale, massing and accents

Building heights

6.3.19 General building heights across the masterplan are set predominantly at three to four storeys. This allows for a backdrop or baseline height to be established and provides a consistency through the masterplan. This baseline height then allows the potential for the taller building accents to form a new skyline for West Cambridge.

6.3.20 Lower development is located on the edges of the site where there are sensitive adjacent land uses and Conservation Areas. This will enable the existing woodland buffer at this boundary to continue to screen development.

6.3.21 Such heights allow for a good balance between the built form and landscape, with some mature trees exceeding the height of the buildings and open spaces having good daylight qualities and sense of enclosure.

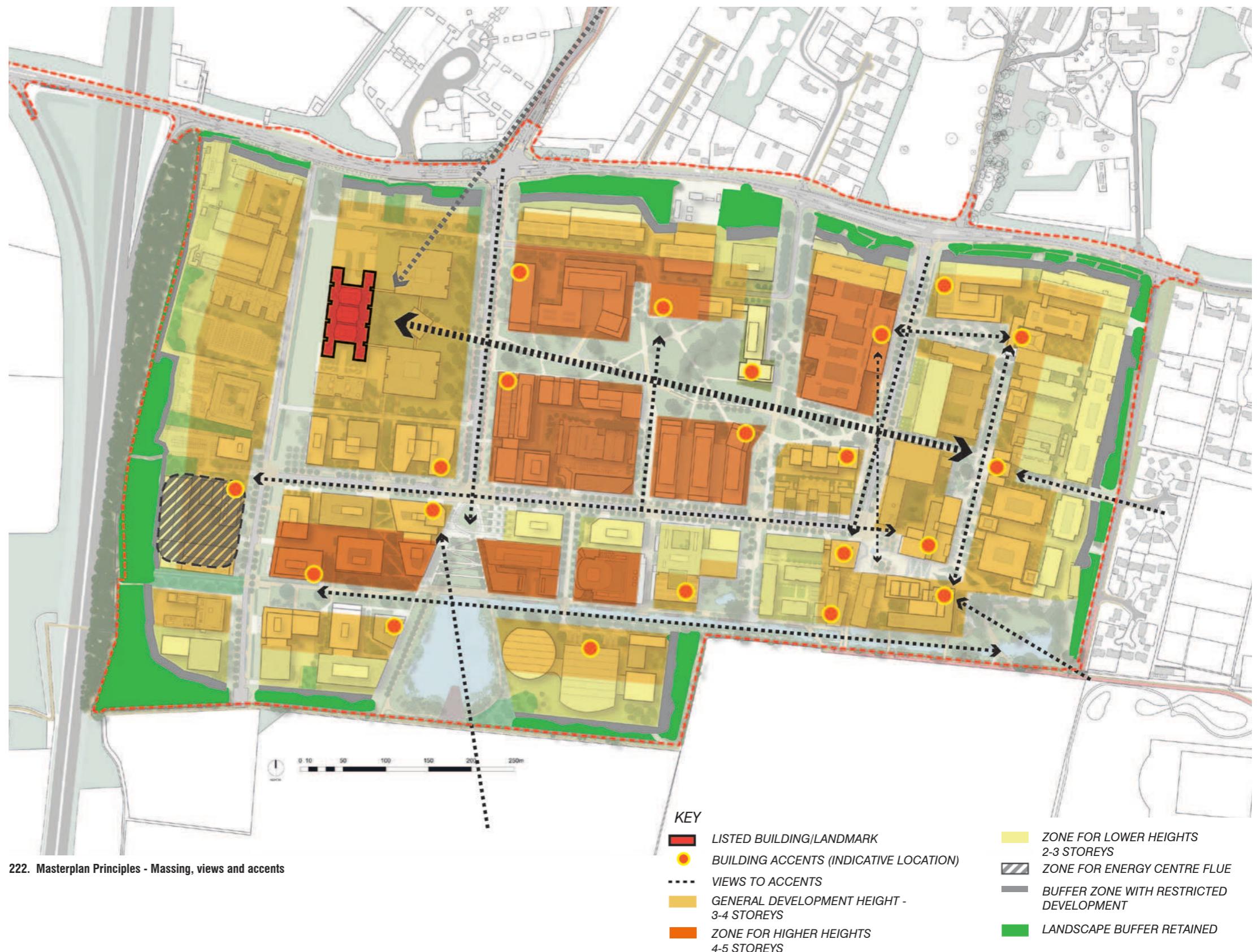
Views and accents

6.3.22 Key to the masterplan is the establishment of a new skyline for West Cambridge, which will reveal a new identity for the site. Also, variations in heights will create opportunities for additional outdoor spaces such as rooftop terraces, promoting integration of landscape and architecture. This new urban framework will also be an aid to legibility and pedestrian movement through the site.

6.3.23 To create this skyline and aid legibility, building accents are located within the centre of the site along The Green open space; around the Forum spaces, and at the JJ Thomson Avenue access. These landmarks ensure that these key spaces are identifiable within the urban structure.

6.3.24 In addition, building accents are also located to terminate views. These accents serve to lead pedestrians through these spaces and provide a visual unfolding and termination of views.

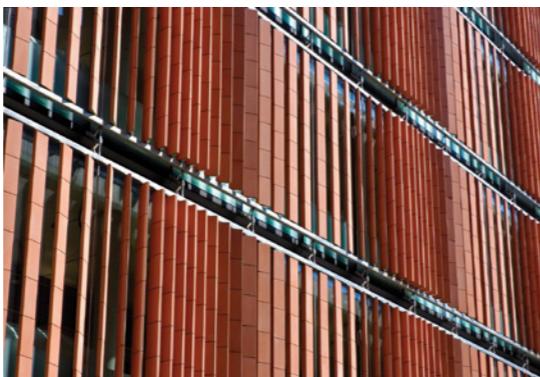
6.3.25 The primary West Cambridge landmark – the Schlumberger Research Building is given increased prominence by the opening up of views across the site, from JJ Thomson Avenue through The Green to the building's roof structure. In addition development heights in the vicinity of the building are kept below the Schlumberger line of the tent structure to ensure that this building remains visible and the tallest element in the west of the site.



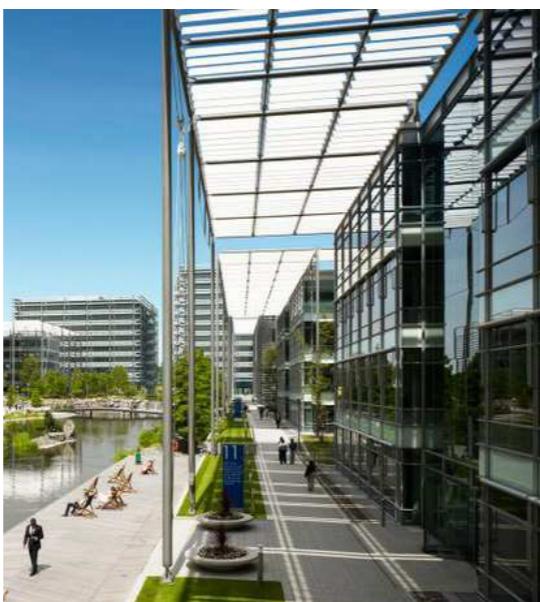
Appearance: Architectural framework

6.3.26 The transformation of the West Cambridge site provides an opportunity for a new, more cohesive architectural character. A key issue of the site is the in-coherence of the disparate and disconnected developments. An additional set of characteristic elements and themes, applied thoughtfully, and drawn from the best of what exists, can address this. To form a new coherence for the site, new overarching themes and attitudes will be explored:

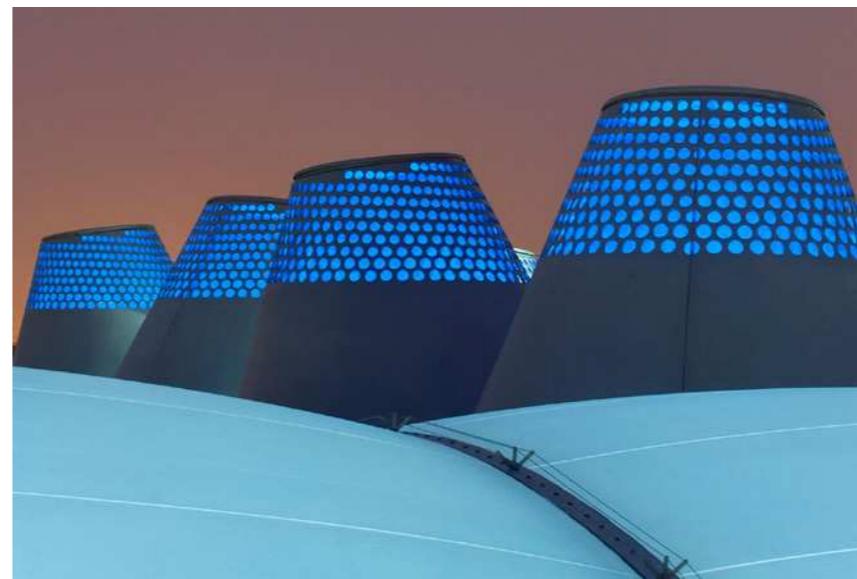
- **Materials:** Use of natural materials such as: timber, brick, masonry, terracotta. Particular interest will be given to exploring these materials used in innovative ways or the use of new innovative materials, as a response to brief or a response to climate.
- **Technology:** Technology will be celebrated through visible, clear and logical structures and tectonic facade treatments. There are good precedents already on the site where the building structure itself provides key architectural interest: such as Schlumberger Research Building and the William Gates/Computer Science building.
- **Roofs and soffits:** A celebration of skyline. Roofs will be used to provide shade, define and provide shelter for exterior, active spaces and provide a response to climate.
- **An environmental response to climate:** applied to facade design and roofscape - layered facades, prefabricated components, brise soleils, shading structures, wind cowls, etc. The University will aim to achieve BREEAM Excellent as a minimum.



Pre-fabricated components, natural materials



A response to climate



A celebration of skyline and response to climate



223. West Cambridge - architectural framework

224. Woodland edge - utility/ancillary buildings

Woodland Edge - Utility buildings

6.3.27 Within the masterplan there is a special condition of mainly utility buildings or car parking structures that are set within the woodland landscape of the western and northern site boundaries. These buildings will be responsive to sensitive conditions such as adjacencies to Conservation Areas and residential uses. These buildings could be characterised by:

- **Use of planting:** on trellis structures, on roofs, around structures to form buildings that are part of the landscape;
- **Materials:** Use of natural materials, or materials that blend with the woodland landscape or a combination of materials to control scale and rhythm of the façades.



225. Appearance - Southern Edge

Southern edge

6.3.28 Some of the existing buildings along the southern frontage already provide good precedents for the use of natural materials and shading devices. These themes would be further reinforced by use of timber and particularly timber as a structural element (this could be applied around East Forum for instance, to provide warmth and natural references in areas where users will socialise), and also through use of shading devices and brise soleils as architectural themes.

The Green

6.3.29 The buildings facing The Green will address this open space with their primary frontages, entrance lobbies and social spaces (which can also spill out into and animate the public realm). Façades will be carefully composed, exploring rhythm and horizontal differentiation between base, middle and roof elements; as well as layering and transparency. Social parts in particular will be transparent to provide a view into the interior of the building. Also, planting of hedges and trees will be explored to achieve a balance of built form and landscape elements within The Green.



226. Appearance - The Green

6.4. Community and open space

Landscape vision

6.4.1 The City of Cambridge has a distinctive character and landscape setting. The diversity of historic buildings and conservation areas, the colleges, the river, the commons, open spaces, natural features and habitats all contribute to the distinctiveness and uniqueness of the City's landscape.

6.4.2 The rural hinterland of Cambridgeshire is particularly close to the west of the City, and is defined by large arable field parcels with an open aspect, but with limited visual connections to the city. The remnants of the agricultural landscape can be seen throughout the City and these remnants define the network of open spaces and routes that shape the urban grain.

6.4.3 The association between public open space, private intimate space and the density and scale of the built form are particularly marked in Cambridge. The connection between these spaces is typically reinforced with mature avenues or lines of trees, formal boundaries, with a clear distinction between private and public functions.

6.4.4 The site at West Cambridge offers and contains many of the features seen throughout the city and rural fringe:

- Hedgerows with mature trees;
- Legible routes with avenues of trees;
- A network of cycle and pedestrian routes;
- Mature woodland copse;
- Woodland buffers and shelterbelts;
- Areas of open water; and
- A range of naturalised shrub and grassland habitats.

The Landscape 'Weave'

6.4.5 The aim of the masterplan is to create a hierarchy of public spaces and a range of landscapes of distinct character. These will draw influence from and weave together the surrounding areas of the city, the countryside reserve, the agricultural landscapes and the emerging new landscapes of the North West Cambridge Development.

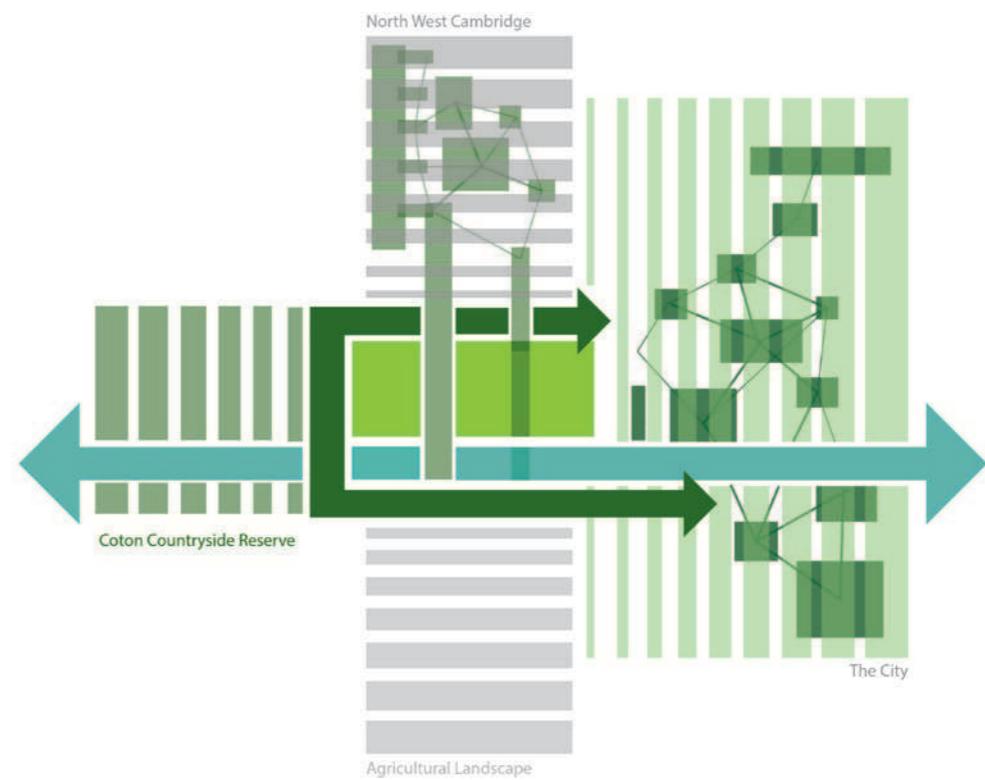
6.4.6 The primary purpose of the new public realm and landscape at West Cambridge is to:

- promote and improve pedestrian and cycle legibility, while minimising conflicts with vehicular movement;
- provide spaces that allow creativity, expression, inspiration and delight;
- integrate and retain existing landscape features and build on the character and amenity they already provide; and
- integrate with the surrounding natural network, promoting diversity and species rich habitats.

6.4.7 Creating a strong landscape framework is important in delivering a masterplan which meets high sustainability targets.

6.4.8 Strong networks of landscape are important for the creation of bio-diversity corridors to benefit species migration including insects, mammals, birds and water species. Species migration helps maintain and develop more robust, bio-diverse communities. Within the West Cambridge masterplan the Landscape 'Weave' aims to:

- provide a continuous network of green spaces and water bodies that link together to create rich habitats for wildlife, where people can walk and cycle and enjoy recreation;
- bring the field pattern character of hedgerows and open fields of the surrounding agrarian area into the site;
- ensure the City of Cambridge is reflected in the landscape structure of the site, by introducing new active urban places for people to meet and congregate;
- connect the new landscapes with the NWCD to the north of the site and draw through and echo this emerging character; and
- introduce a new, substantial central green-space in the overall network of landscape ensuring strong ecological, pedestrian and visual links through the centre of the site.



227. Landscape Concept Diagram - The West Cambridge 'Weave'



228. Landscape Concept Diagram - The West Cambridge 'Weave'



229. West Cambridge - Landscape illustrative masterplan

Landscape framework

6.4.11 Underpinning the open space design approach are five themes. These have been determined to guide design considerations, opportunities and outcomes for West Cambridge. The landscape framework for West Cambridge will:

1. Character and Legibility

- Establish a site-wide open space structure that promotes good legibility and way finding;
- Draw upon the existing, embedded site qualities to inform the future character of open space;
- Retain and enhance the existing context of mature trees and woodland buffers and maintain an aesthetically 'green' place relevant to its rural location;
- Ensure all public space has a well-defined role and character and ensure buildings contribute to the use and definition of public space; and
- Ensure that the character and design of streetscape responds in an integrated way with hierarchy, scale, built form, functional movement, water sensitive urban design, entry locations, points of intersections, views and destinations.

2. Community and culture

- Provide a mix of spaces to support a diversity of social activities;
- Design the public realm to maximise community and university/occupier engagement; and
- Provide event/meeting places and facilities for multi-functional and adaptable use.

3. Connectivity and access

- Strengthen the existing campus structure by forming strategic external links;
- Create a pedestrian and cycle network that promotes and encourages active transport through ease of mobility within the site and to external networks; and
- Ensure strong visual connections and way finding.

4. Safety and security

- Create safe public spaces, with appropriate levels of passive surveillance provided as a result of the strong relationship between space and built form;
- Ensure adequate provision of lighting to all public realm areas and in particular the major pedestrian and footpath network;
- Ensure all paths are universally accessible.



230. West Cambridge - Landscape characters

5. Environment and sustainability

- Use materials that feature low embodied energy, effective whole-of-life costs, low ongoing maintenance and are sustainably produced.

KEY
West and East Forums
The Green
Southern Ecological Corridor
Green streets and links
Woodland edge

Amount of public realm open space: Key Spaces

6.4.12 The scale and amount of open space held within the masterplan has been informed by both Cambridge and world-wide precedents. The total landscape and public realm area (including streets, Green Links and Woodland buffers) adds up to 16.8 ha. The primary areas of open space highlighted in the diagram in Figure 231, add up to 10.3 ha. The majority of this area is accessible to site users and the general public, however some areas form on-plot landscape, such as the western-most Garden of The Green which is within the Schlumberger Research Building plot.

6.4.13 The largest open space is located close to the centre of the site. This is the Central Garden, part of The Green chain of gardens, which accommodates soft landscaping and open lawn areas for informal recreation and relaxation. This space has an area of 1.8Ha (in comparison a minimum set by the Design Guidelines that accompany this Design and Access Statement of 1.6Ha) and some of the recreation activities possible within this size of space include frisbee, informal ball games, yoga, etc.

6.4.14 The main area of the Green, between JJ Thomson Avenue and High Cross, has an area of 2.9Ha.

6.4.15 Other larger spaces include the East Pond and the West Lake. These spaces include water bodies and mature tree planting and are more suitable for relaxing breaks, picnics, etc., rather than large group activities.

6.4.16 The East and West Forums are the primary active, urban meeting and interaction spaces and, as such, are of relatively smaller scale and more contained by development.

6.4.17 The key spaces highlighted in Figure 231 are woven together into a network of connective spaces which ensures all the parts of the site have a good access to open space.

6.4.18 An important part of this network are the north-south Green Links, which themselves are not of significant width to be used for informal sports and have not been included in the total amount of public spaces. Nonetheless these green links can provide pleasant small gatherings spaces, pedestrian links and ensure that the green, soft feel is distributed throughout the site.



Incorporating existing trees



232. West Cambridge - Trees to be retained

Existing mature trees

6.4.19 Located within the site are individual and groups of mature trees forming either distinct lines of trees, avenues or standard specimens. The trees of note are prominent specimens given their age, size and maturity. Their vitality and structural conditions are varied, however, the majority are in good vitality. The diagram in Figure 232 is taken from the Design Guidelines that accompany this Design and Access Statement, and shows trees in dark green that must be retained and others that are recommended to be retained if possible.

Existing street trees

6.4.20 The existing street trees are predominantly young specimens that form distinct avenues or formal lines of trees. The limited age of these trees on High Cross and Charles Babbage Road reduces their arboricultural value at present. However, over time this will increase with their maturity and it is the preferred approach to keep these trees where possible, replace trees in ill health and infill where required with appropriate species.

Woodland Edges

6.4.21 The site boundaries sustain linear belts of mature trees and shrubs that provide full or partial screening of the site and it is the preferred approach to keep these trees where possible and will be managed through the implementation of 'Woodland Management Plan'.

Opportunity for new tree planting



233. West Cambridge - Proposed tree planting

KEY

- Existing trees to be retained
- New standard tree planting
- Opportunity for large feature tree planting
- East-west key open spaces
- North-south green links and streets
- Woodland edge
- Tree buffer zones

Opportunities for new tree planting

6.4.22 In addition to the retention within the masterplan of the previously described planting and trees, it is proposed to enhance the planting generally throughout the site, and specifically to increase the number of large specimen trees within the site.

6.4.23 These new trees would be located in the larger green spaces which will have less restricted conditions and will enable these trees to reach their full potential in the future. These landscape spaces are identified within The Green, the Southern Ecological Corridor, the East Pond and West Lake areas and within Green Links.

6.4.24 Standard tree planting is proposed throughout the site to create avenues, provide interest where people gather and enhance the public realm.

Activity and social spaces in landscape

6.4.25 Places of social intensity that will be the focus for community, educational, commercial and ecological activities are formed at key intersections between roads, footpaths, cycle routes, as well as at certain building entrances.

6.4.26 These places can be seen as 'social hubs' and will provide a variety of spaces, from urban plazas, to play zones, urban orchards, outdoor labs or external meeting spaces. These spaces will be designed to accommodate people coming together.

6.4.27 Informal leisure and recreation is predominantly accommodated within the more major open spaces. The Green and the East and West Forum spaces are conducive to passive recreation that is not prescriptive or defined but instead provide flexible and active spaces in a wider landscape setting.

6.4.28 More structured sports activity is located in proximity to the Sports Centre and the West Lake and includes walking trails, cycling and possible open water swimming.

6.4.29 Recreational based cycling & pedestrian activity is part of a greater cycling and pedestrian network linking to Coton Footpath, the Coton reserve and the North West Cambridge Development to the north.



234. West Cambridge - Activities and Social spaces

Social amenity

Three tiers of amenity spaces

6.4.30 The West Cambridge site at present offers a series of amenity facilities such as the Cavendish Canteen, the West Cafe at Hauser Forum, and smaller cafes such as that within the CAPE Building providing hot and cold drinks, sandwiches and snacks. Many of these smaller facilities are embedded within buildings and while providing a vital function for the staff that work there, do little to invigorate public space or to promote gathering, exchange and interaction beyond the building they are located in. Within the new masterplan, many of these facilities will be retained while a few will be removed as redevelopment/relocation takes place. However, the aim of the masterplan is to improve and then supplement the existing offer with a fuller range of new and modern facilities.

6.4.31 With the proposed increase in density on the site, there will be a necessity to increase the amount of the amenity facilities offered. This importantly also provides the opportunity to increase the range and variety of types of facilities throughout the site - to provide a variety of styles, experiences and prices.

6.4.32 The strategy for these spaces is to form clusters of activity that are capable of becoming attractors or destinations within the site, and then to associate these activity clusters with key public spaces so as to invigorate key locations such as the East and West Forums and through The Green.

6.4.33 Proposed are three tiers of amenity spaces as illustrated by the photos on this page:

- Tier 1: Foodcourt. These are the largest types of spaces, between 800 - 1500 sqm in area (or 350 - 450 seats). The size of these spaces mean that they bring people from across the site for meeting, gathering and eating and create high levels of activity. It is predicted that the West Cambridge site, at full capacity could accommodate up to two of these and they would be located within University shared facilities buildings at or close to the East Forum;
- Tier 2: Hot Food Cafe. These are medium size spaces, with a varied offer and experience, such as a Cafe or a fine-dining room, and sized between 400 - 700 sqm (or 150 - 300 seats); and,
- Tier 3: Cafe/deli space. These are the smallest sized spaces, between 150 - 300 sqm (or 50 - 150 seats).

Tier 1: Food Court (800 - 1500 sqm)



235. EYE Film Museum, Amsterdam



236. Macquarie University, Sydney



237. Google Office in London

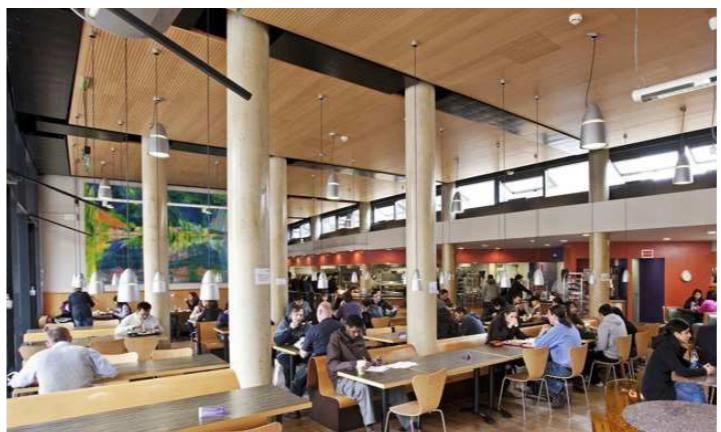
Tier 2: Hot Food (400 - 700 sqm)



238. Existing catering area in Hauser Forum

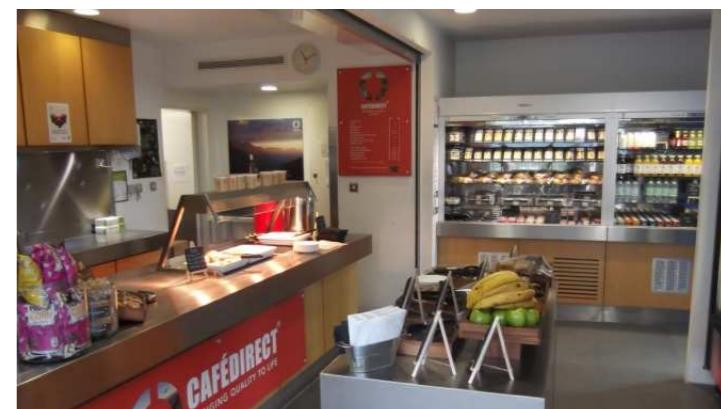


239. Google Headquarters, California



240. Queen Mary University of London

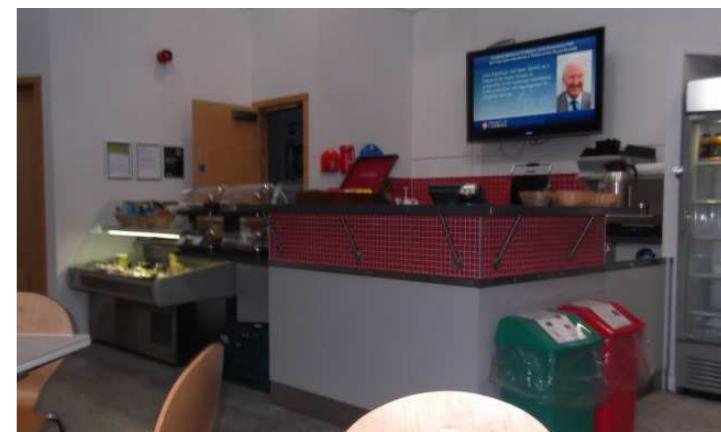
Tier 3: Cafe/Deli (200 - 300 sqm)



241. Existing cafe in William Gates Building



242. Existing cafe in Sports Centre



243. Existing cafe in CAPE

Location of catering

6.4.34 The highest concentrations of catering facilities are located around East and West Forum. Due to the concentration of academic staff and students, two large food courts could be in the East Forum area.

6.4.35 The first to be delivered is the replacement of the Cavendish Canteen, located on The Green, adjacent to JJ Thomson Avenue and opposite the new Cavendish III Laboratory. This will be in the form of a food court which can be positioned to over look JJ Thomson Garden and invigorate the new green space. While accommodating a canteen this building will also accommodate shared teaching and study spaces. This location is also highly visible forming an event along the JJ Thomson Avenue. Its gravitational pull will aid connections between the East Forum spaces to the south and The Green.

6.4.36 The East Forum cluster of shared facilities can be established following the relocation of the existing Cavendish Laboratory. New facilities will frame and extend along the East Steps, which connect the East Forum Upper Square, the Lower Square and the East Pond area. Another larger food court could be located here.

6.4.37 To the west of the site a further cluster can be established using the ground floors of new commercial research buildings overlooking the West Forum Terraces and the western extension of the Southern Ecological Corridor. These facilities are smaller but will have the potential to provide a variety of offers including: deli/cafe, hot food, fine-dining, etc. These facilities will be located so as to provide an active frontage to the West Forum spaces.

6.4.38 Along The Green, additional facilities on the ground floors of new buildings can extend activity through the space from east to west, with the potential for a facility to be visible from High Cross.



244. West Cambridge Catering Spaces

- ① FOOD COURT (800 - 1500 sqm)
- ② HOT FOOD (400 - 700 sqm)
- ③ CAFE / DELI (200 - 300 sqm)
-
- New catering facilities
- Existing catering facilities

6.5. Climate

Introduction

6.5.1 The public realm and open space network which is an important part of the new spatial structure and the identity of the site, also has a key role in the sustainability strategy for the site. It aims to:

- Improve ecology, by increasing connectivity and the variety of habitats;
- Utilise the existing features and elements on the site, in order to minimise waste;
- Facilitate sustainable drainage; and
- Promote walking, leisure and enjoyment of nature, through improvement of quality of open spaces and addition of amenity.

6.5.2 Key principles include:

- Protection and enhancement of existing areas of environmental importance and strengthen physical links to establish 'Biodiversity Corridors' that connect into a wider landscape;
- Respond to topographic and pre-development drainage patterns on the site;
- Open space and streetscape to integrate water sensitive urban design initiatives, where possible;
- Adopt a sensitive and strategic response to constructed micro-climates through both location of facilities and plant species;
- Select native species where possible to encourage bio-diverse bird and insect habitats;
- Use materials that feature low embodied energy, effective whole-of-life costs, low ongoing maintenance and are sustainably produced; and
- Retain existing trees where ever possible.

Ecology

6.5.3 The site has existing habitats that attract wildlife, such as the Southern Ecological Corridor. These areas will be retained and enhanced where possible to support the existing and attract new diverse wildlife.

6.5.4 The West Lake, the East (Payne's) Pond and the Southern Ecological Corridor's canals and other water bodies could potentially support a diverse range of species. Although historic records exist of water voles, the habitats on site are no longer suitable. They could be made suitable through the proposed landscape design.

6.5.5 The Coton Footpath hedgerow, the woodland edges and existing trees are likely to attract small birds which utilise them for nesting and feeding.

6.5.6 The habitats to the south west of the site are dominated by arable fields with small woodland blocks and hedgerows. These play an important role in connectivity to the wider habitats.

Infrastructure

6.5.7 The site has an existing network of roads, drainage and utilities infrastructure that is proposed to remain in place. Waste will be reduced by reusing these networks where possible.

6.5.8 There is already an extensive surface water drainage network that utilises a range of SUDs storage structures discharging to Washpit Brook to the north and to Coton Brook to the south. The proposed modifications of the on-site southern water bodies will provide additional capacity.

Sustainable drainage

6.5.9 More than two thirds of the site is drained into the existing water bodies on the site: the West Lake, the East (Payne's) Pond and the Canal.

6.5.10 The opportunities to build sustainable drainage methods in to this network, such as roadside swales and retention ponds, have been explored.

Energy Strategy

6.5.11 A preferred Energy Strategy has been produced for the site and this includes a site wide heat network and energy centre.

6.5.12 However, there are ongoing concerns about the opportunity to export electricity from the site and how this will affect the viability of proposals for an energy centre based on CHP, and provision of PV panels, as well as the recognition that fossil gas CHP may not be a low carbon solution in the medium term.

6.5.13 It has been agreed that the Energy Strategy should include the principle of hierarchy of approach so now explores options including:

- A fully site wide approach exploring different energy solutions within the site;
- An approach based on clusters or precincts linking several buildings;
- A building by building approach.

Ecology and bio-diversity



245. Ecology and biodiversity network

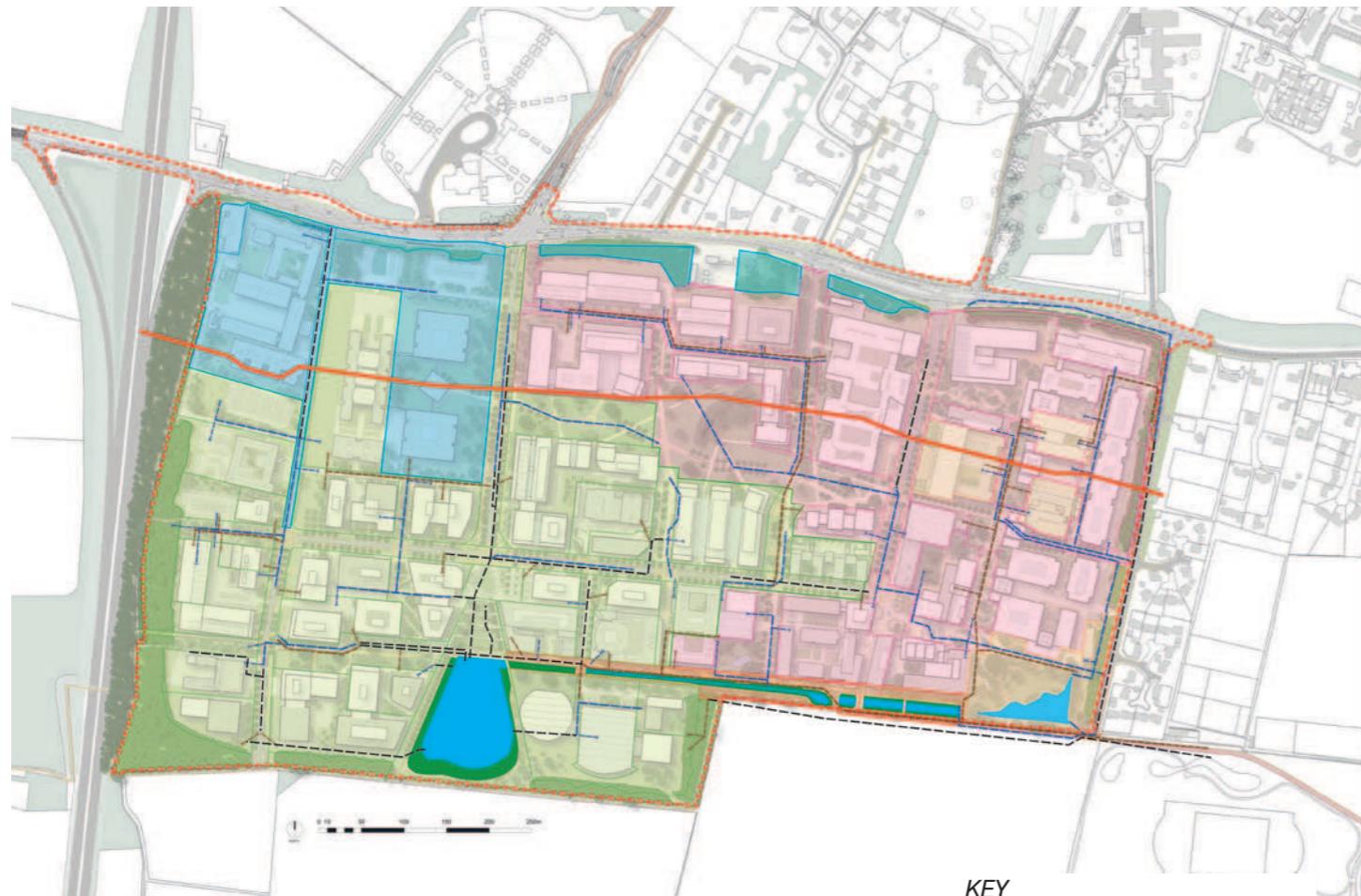
KEY

- Existing Ponds & canal - reprofiled
- Existing Ponds & canal - retained
- Proposed Ponds & canal
- Rain gardens/attenuation opportunity area
- Rain garden opportunities to streets
- Existing Woodland edge retained
- Existing trees retained within the site
- Indicative location for additional tree planting that can grow to maturity

6.5.14 Key existing elements of the site will be retained and reinforced to improve habitats such as the Southern Ecological Corridor and the woodland edges:

- The new profile of the Canal and West Lake, which will be modified to increase drainage capacity, will maximise ecological value by providing a variety of physical habitats and maintain a permanent water level. Hard engineering structures along the banks of these surface water bodies will be minimised with preference given to softer natural banks planted with species to maximise ecological value;
- Existing woodland buffers will be improved in accordance with the 'West Cambridge Masterplan Woodland Management Plan' to ensure that existing wildlife corridors are maintained and improved;
- Existing mature trees will be retained within the site and new planting will be designed to reinforce the ecology of the site, including the introduction of additional trees that can grow to maturity.

Drainage strategy

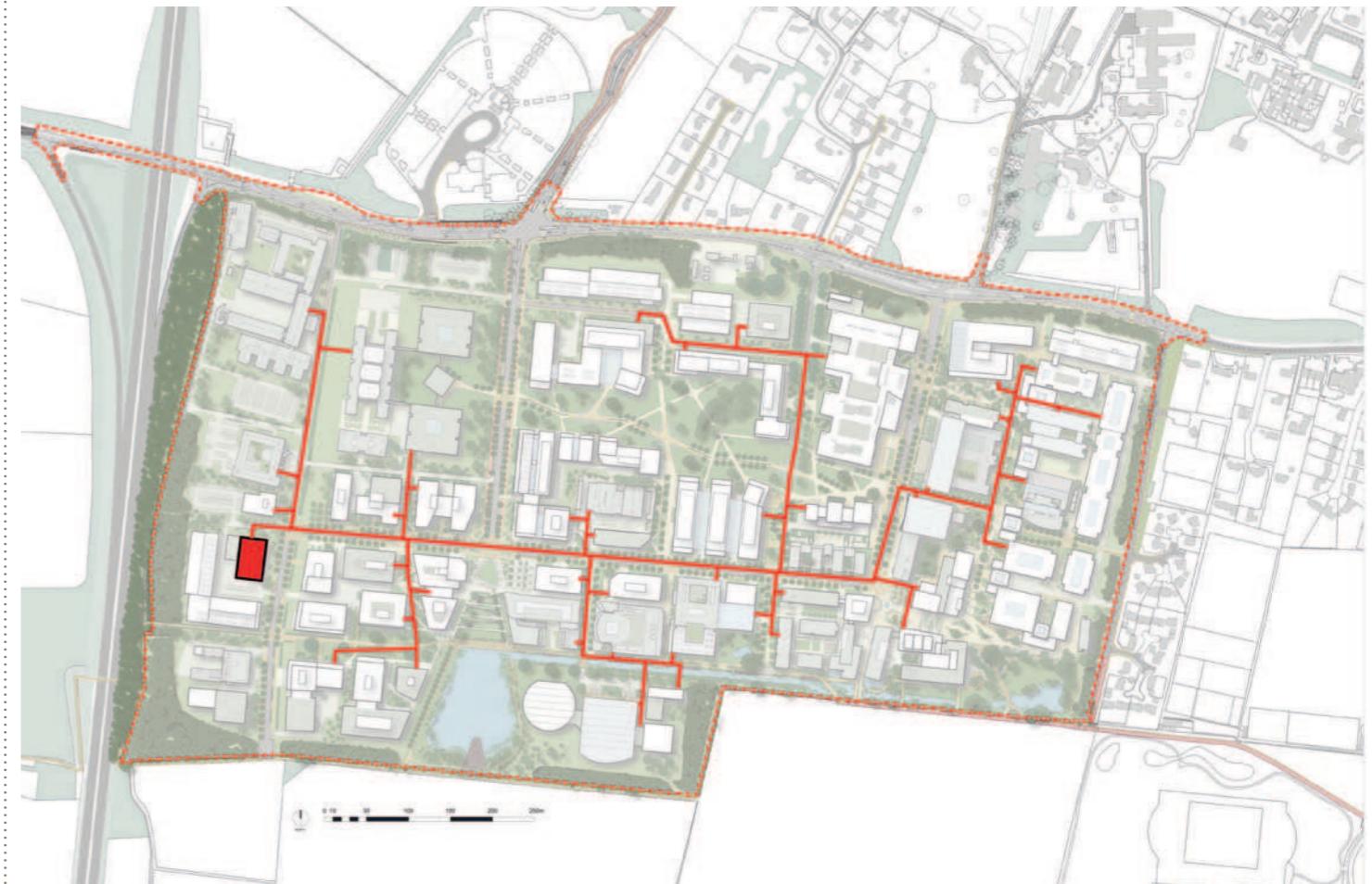


246. Sustainable Drainage Strategy

6.5.15 The topography of the site falls from the existing watershed line that runs east/west through the centre of the site. Surface water to the north of the watershed line is directed to Washpit Brook to the north of Madingley Road and south of the line it is directed via the Southern Ecological Corridor to the Coton Brook. Key drainage principles include:

- Opportunity for road-side rain gardens to High Cross, JJ Thomson Avenue and Western Access Road;
- Opportunity for SUDs conveyance systems along the north-south Green Links;
- Modifications to the existing lake, pond & canal to provide additional capacity, by lowering flow controls;
- Tanked permeable paving to be used for surface water collection;
- Opportunity for water features within The Green to create landscape features.

Energy Strategy



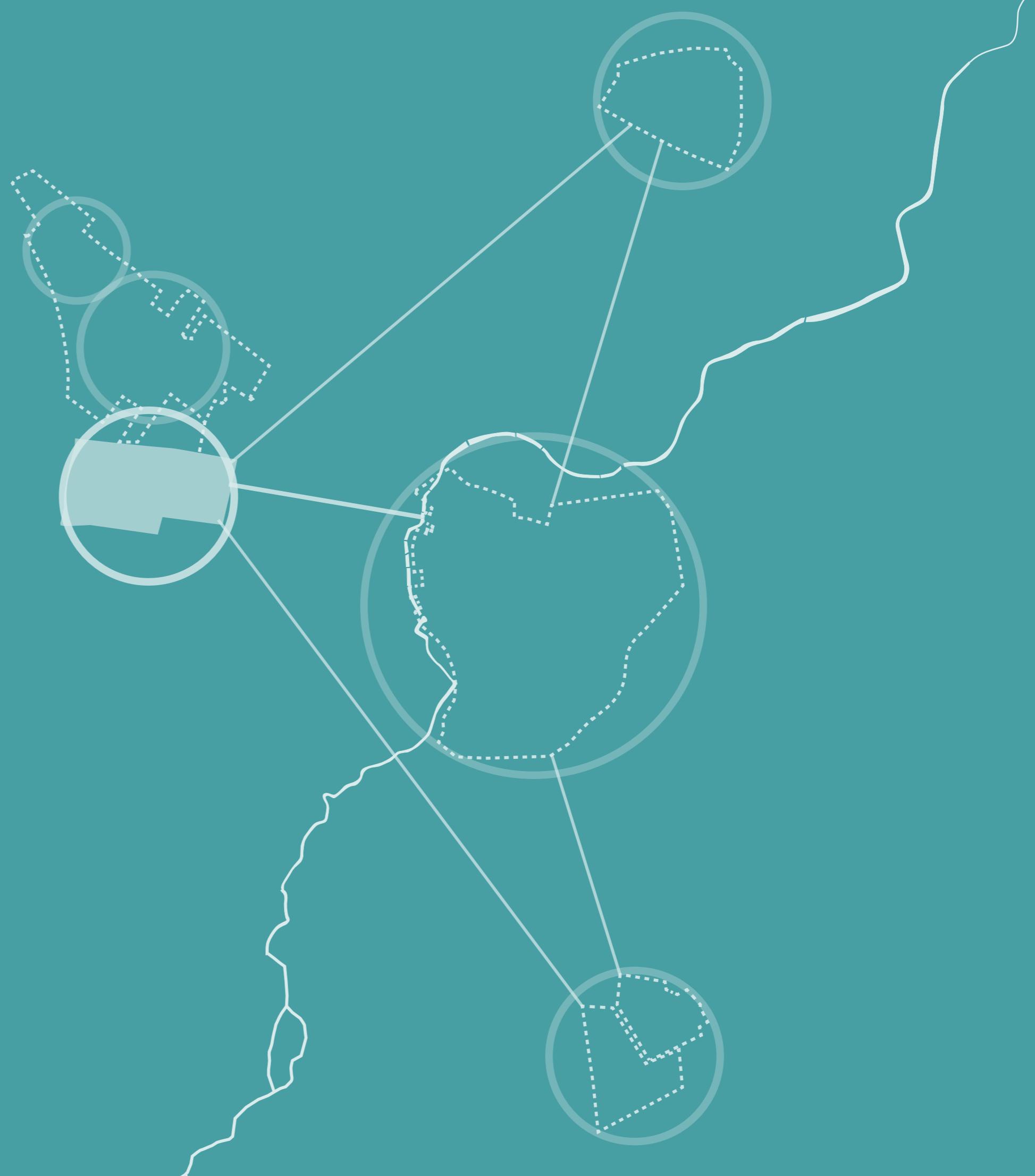
247. Preferred Energy Strategy - Site-wide District Heating Network

6.5.16 The preferred energy solution proposes a site wide CHP network and an energy centre delivering most of the required heat. This would be initially served by gas CHP, but with the option to replace this with another technology at a later date. Whilst the site wide CHP network remains the preferred solution, it is important to prepare for the possibility that it may not be deliverable. Other solutions that have been explored are:

- The cluster or precinct solution:** which recognises the benefit of linking a number of buildings together. There could be options to serve these clusters either with gas CHP, air source or ground source heat pumps;
- Building by building solutions:** this approach may make sense for some particular buildings which are further away from others and have very low energy demands. Again there could be options to serve these buildings with CHP, air source or ground source heat pumps.

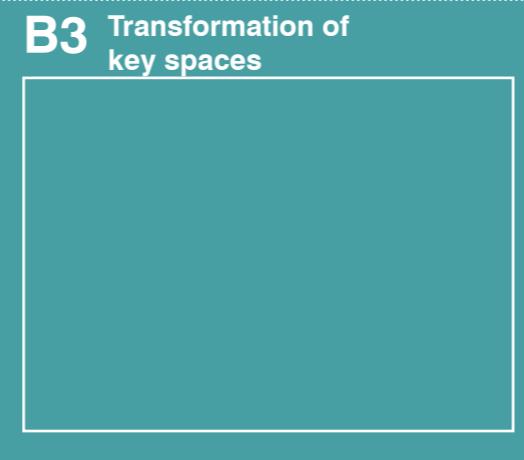
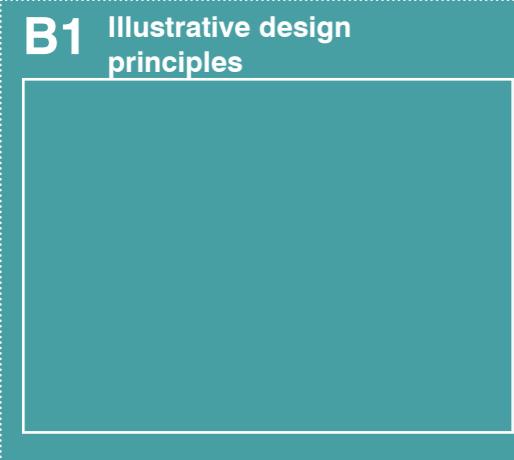
6.5.17 In the event that a cluster based solution is adopted, the analysis suggests that this would mean a shift to heat pumps and could retain a mix of air and ground source systems to provide maximum flexibility.

6.5.18 The eventual solution could be a mixture of these, as appropriate to the different clusters.



ILLUSTRATIVE MASTERPLAN

B2



7. ILLUSTRATIVE MASTERPLAN

7.1. Illustrative masterplan

The potential of West Cambridge

7.1.1 The Illustrative Masterplan shown in Figure 249 provides a clear indication of the potential at West Cambridge. This indication of a different future for West Cambridge describes a gradually evolving new place which builds on the ethos and intention of the existing consented masterplan; incorporates existing elements and buildings; and forms a coherent urban structure connected and integrated into its existing and emerging context. The previously described approach to land use distribution, density, movement, public space, landscape and distribution of amenities has been developed to form a new site character which will change current perceptions, enable increased activity, encourage interaction between users, developing routes to knowledge transfer and eventually to commercialisation of knowledge.

Responsive to University need

7.1.2 A high quality environment of buildings, landscapes and public spaces, as indicated in the Illustrative Masterplan, will support the requirements of West Cambridge community well into the future. The more intensive use of the site will improve the viability of amenity spaces and sustainable transport provision, so making the site more attractive to potential users and occupiers, but also increase interaction between site users.

7.1.3 The increased interaction between commercial research and academic users is key to the University's development strategy, and the West Cambridge site provides an almost unique opportunity to bring benefits by securing the existing research institutes at West Cambridge; providing for the University's spin-out businesses and those businesses that it wishes to work with and support; and increasing mobility and interaction across the University and the city.

7.1.4 The development at North West Cambridge provides a new context for West Cambridge and offers synergies between the two sites. Strong physical and visual connections have been formed between the two developments with the intention that together, these two sites will form a greater University orientated urban quarter for the city, which not only provides homes for staff and students, but provides wider and more diverse local working, learning and employment opportunities.

Responsive to Context

7.1.5 The Illustrative Masterplan demonstrates how the new character and density of the site can be integrated sensitively with its surrounding context. Massing has been carefully moderated at all the edges of the site and strategies have been employed to promote variation and interest in the skyline, within the central, taller areas. The architecture framework sets out a character for the site which both builds on existing development and indicates a softer architectural character. Landscape planting has been employed to soften development, such as the retention and reinforcement of the woodland buffer; the introduction of major new green spaces; and the creation of open spaces that will allow trees to grow to maturity. There is a strong emphasis on greener, informal spaces within the masterplan, and both new and existing spaces have been developed to incorporate existing mature trees and other landscape elements allowing greater biodiversity and visual interest.

Gradual Transformation

7.1.6 Although low in density and with dispersed amenities, the existing site already has a significant amount of development. The key open spaces and infrastructure are already in place, establishing the urban structure as defined in the 1999 masterplan. Many of the buildings are of exceptional quality, loved by their users and are well functioning spaces for learning and research. However, the lack of overall critical mass and footfall, low and uneven density and consequent lack of shared amenities have resulted in a poor perception of the site.

7.1.7 The intention of this Illustrative Masterplan is to show how these issues could be addressed from the outset and to propose an illustrative scenario for gradual improvement of conditions on the site.

7.1.8 The Illustrative Masterplan provides one scenario for gradual growth and intensification of academic and commercial uses, population and amenities. The aim of this sequence is to show the opportunities for site improvements that are deliverable in early stages, and to follow with further interventions which are dependent on larger relocations, such as the Cavendish Laboratory or the Veterinary School.

7.1.9 The early stage developments demonstrate that the masterplan can accommodate the University's most immediately needed developments (Priority Projects), while also illustrating through the later stages of development, the ultimate potential of the site.



248. West Cambridge Masterplan - View of the West Forum (West Lake)

KEY	
	NEW DEVELOPMENT
	EXISTING BUILDINGS RETAINED
	EAST FORUM SPACES
	EAST POND
	WEST FORUM SPACES
	WEST LAKE
	THE GREEN
	SOUTHERN ECOLOGICAL CORRIDOR
	SHARED FACILITIES BUILDINGS
	ENGINEERING DEPARTMENT
	CAVENDISH III LABORATORY
	ACADEMIC DEPARTMENT
	COMMERCIAL LED DEVELOPMENT
	SCHLUMBERGER BUILDING
	BRITISH ANTARCTIC SURVEY
	SPORTS CENTRE
	DATA CENTRE
	PARKING STRUCTURES
	ENERGY CENTRE
	UKCRC BUILDING



249. West Cambridge - Illustrative Masterplan 2017

7.2. Illustrative phasing

Incremental development of West Cambridge



250. Aerial view of Existing Site Condition

Existing Site

7.2.1 The site already has a number of high quality buildings in place, as well as roads and key open spaces, such as the East (A) and West Forum (B).

7.2.2 Higher density academic developments are located along southern edge (C). The low density Veterinary School (D) occupies the central part of the site, and the existing Cavendish Laboratory complex occupies the south eastern corner (E).



251. Aerial view of Phase 1: Priority Projects

Priority Projects

7.2.3 The University aims to deliver noticeable improvements from the earliest stage of development. The key capital project at this stage is the new Cavendish III Laboratory, the development of which will be joined by delivery of shared teaching and catering facilities to the south and will be used as a catalyst for improvement of existing and formation of new open spaces.

7.2.4 This stage of development is envisaged to include:

- Over 85,000m² of departmental academic space, including Cavendish III Laboratory (A) and the Department of Engineering's initial phases (B);
- First phase of shared facilities (C);
- Reinforcement of existing facilities to form an Entrepreneurship Hub at the East Forum, with innovation and scale-up centres (D);
- Approximately 50,000m² of commercial research development at the Western Cluster (E);
- Potentially, a multi-storey car parking structure (F).



252. Aerial view of Interim Condition

Interim Condition

7.2.5 This interim condition follows after completion of priority projects and clearance of the current Cavendish site. It shows developments not dependant on relocation of Veterinary School.

- Completion of the East Forum, with additional shared facilities and new public realm (**A**);
- 18,000m² of departmental academic space, with expansion for Department of Engineering (**B**), as well as possible expansion for Material Science and Metallurgy (**C**) and Chemical Engineering and Biotechnology (**D**);

- Further 38,000m² of commercial research development and near-completion of the Western Cluster, with possible Innovation Centre to the north of West Forum (**E**);
- Nursery (**F**);
- An additional multi storey car parking structure (**G**).



253. Aerial view of at Full Capacity

Full Capacity

7.2.6 The relocation of Veterinary School would allow for:

- Over 60,000m² of departmental academic space, with more academic space (**H**) and possible expansion space for Cavendish III Laboratory (**I**);
- The Green completed in entirety and including the central cycling and pedestrian route linking site East-West (**J**);
- An additional multi storey car parking structure (**K**).

7.2.7 The final stage could include:

- Over 80,000m² of academic and commercial development in the former paddocks area (**A**) and in the Western commercial cluster (**B**);
- Completion of sports centre (**C**);
- This would be supported by an additional car parking structure (**D**)



254. Existing Site Condition



255. Phase 1: Priority Projects



256. Interim Condition



257. Full Capacity

7.3. Interim activities

Interim activities & programme testing

7.3.1 As West Cambridge develops there is opportunity within the site to begin to meet the needs of present users and those newly arrived. There is a pressing need to bring activity and interest and to start building a new place within the city. The role of interim activities and meanwhile uses on vacant plots and spaces is vital to begin to redefine the perception of the site.

7.3.2 The transitional plots (for example, the areas vacated by the Veterinary School once relocated) could be used for interim activities and also as means to determine what kind of programmes are successful and should be permanently provided in some of the public open spaces which are due to be delivered in subsequent phases. In addition, there are spaces around the Sports Centre that could be occupied in an interim condition until the later phases of the building are implemented.

7.3.3 The interim activities will introduce vibrancy and serve as vehicles for socialisation from the early stages of the project.

7.3.4 The activities listed below are based on ideas from benchmark studies, but the interim uses could also be informed by community participation and/or local idea contests. Activities of wider appeal could be considered, that would bring people from outside the site and help integrate the site better into the city.

7.3.5 Interim activities could include:

- Family programme: science fairs and workshops for adults and children;
- Recreation: informal kick-about areas, table tennis or petanque (boules), giant chess, workout stations;
- Services: bike servicing or Dr Bike;
- Food and beverage: food vans, pop up stalls and coffee points.

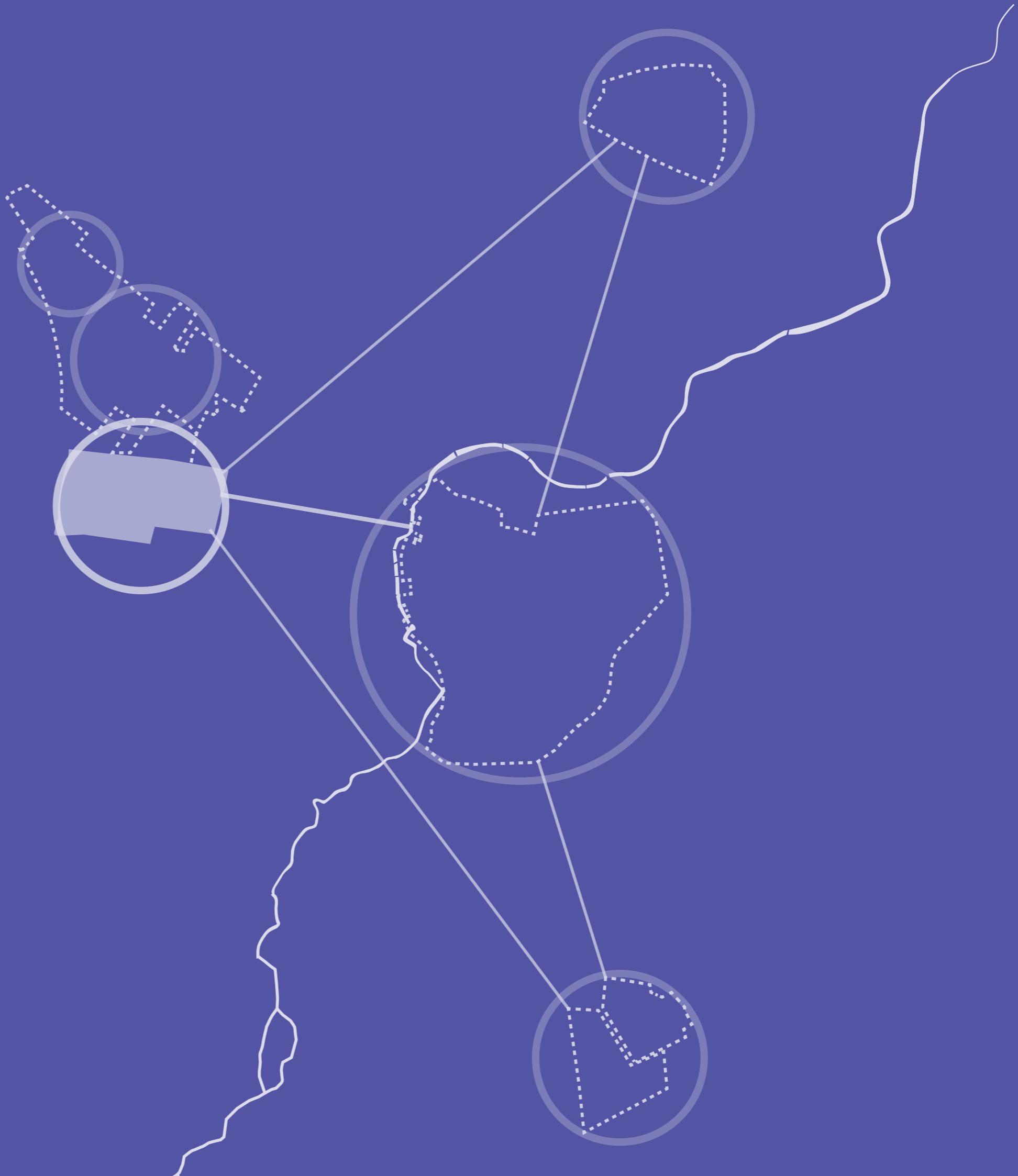
7.3.6 Interim activities could serve as a testing ground for public realm uses which could continue into future on a temporary or periodical basis, such as street fairs, festivals and markets. Together with innovation spaces (such as ideaSpace) and prototype workshops, these informal, but knowledge and science oriented activities could help develop an identity that is complementary to the historic centre, and experimental and informal.



258. Interim Activities



259. The West Cambridge Masterplan - view of The Green open space



TRANSFORMATION OF KEY SPACES

B3

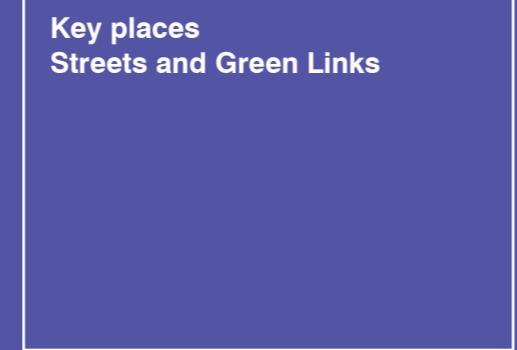
B1 Illustrative Design
Principles



B2 Illustrative Masterplan



B3 Transformation of
Key Spaces



8. TRANSFORMATION OF KEY SPACES

8.1. Key places

West Forum spaces

8.1.1 The West Forum is one of two primary urban public spaces and forms a focus for activity for the west of the site. This space is a key element retained and brought through from the previous masterplan.

Role in the Masterplan

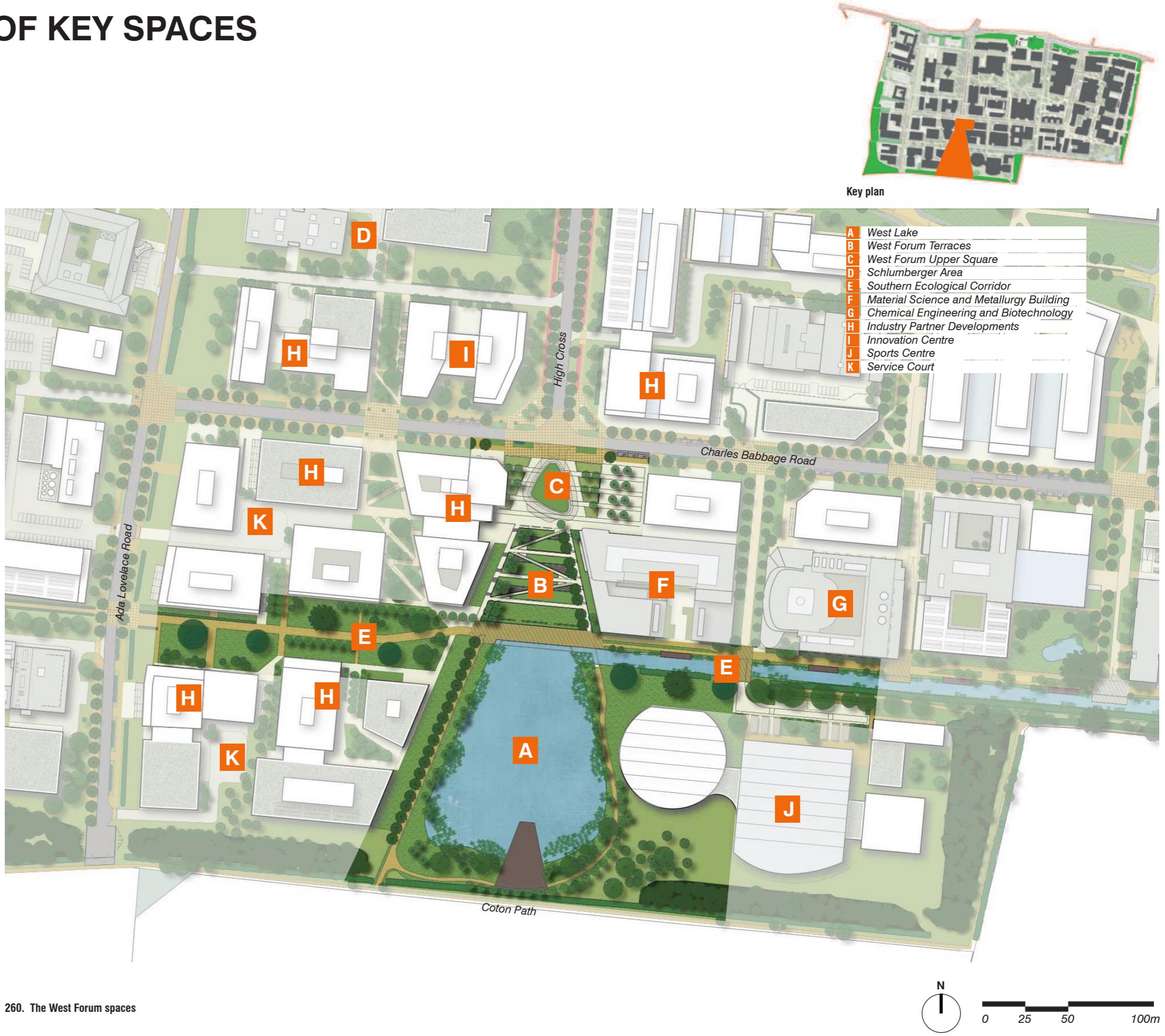
- The space will be transformed to become the focus of the Commercial Research cluster to the west of the West Cambridge site;
- An arrival space for the west side of West Cambridge - forms the termination of High Cross and so links directly to the North West Cambridge Development, and specifically its Local Centre.

Surrounding uses

- The focus for commercial research, community and social spaces - located directly on or adjacent to the squares are the sports centre, active uses such as cafés, entrances to commercial buildings and a proposed Innovation Centre;
- Existing academic buildings form the eastern frontage to the space;
- It forms the key gateway to the commercial research use cluster located west and north of the Forum;
- Consisting almost entirely of new build floorspace, the commercial research buildings will form a new western frontage of the West Forum spaces.

Movement

- The West Forum consists of a series of linked pedestrian only spaces: Upper Square, West ForumTerraces and West Lake;
- Bus routes and stops are located adjacent to the Upper Square, and there is potential for the future Arc route bus stop to be located close-by;
- Car drop-off for visitors is accommodated in the Upper Square;
- A key existing strategic east-west cycle route runs through the space along the Southern Ecological Corridor - between the West Lake and West Terraces.



Scale of spaces

8.1.2 The scale of the West Forum spaces are influenced by the existing spaces and buildings, including the West Lake and the terraced landscape. The terraced landscape will maintain its dimensions (about 50x50m) and the lake area will be slightly enlarged, to about 170x155m.

8.1.3 Proposed development to the west will provide new frontage and enclosure as well as bring a new activity to the spaces. The Upper Square will form an arrival point and new development will restrict the space to approximately 40x90m in size. Care is taken to maintain views to the southern countryside while providing shelter from wind and noise.

Description of West Forum spaces

▪ The West Forum is a sequence of spaces, negotiating the topography of this part of the site, with the three spaces located on different levels and stepping down towards the Southern Ecological Corridor and the lake;

- New development introduces enclosure and active frontages to the western side of the space;
- Distant views over the southern countryside are provided from the Upper Square and the West Forum Terraces;
- The existing woodland is retained and reinforced to create a sense of enclosure to West Forum and provide a backdrop for West Lake.

The **West Forum Terraces** is a landscaped space that provides views over the lake and a stepped and ramp connection to the two main public spaces - the Upper Square and West Lake.

The **Upper Square** develop a foreground for the lakeside in the form of informal meeting areas and a vehicular drop off square.

The third space, **West Lake**, is a revitalised green space around the existing lake - pedestrian access is allowed to the edges of the lake and active uses front onto the lake on the new western frontage creating a space for connecting with nature.



261. The West Forum - section



262. Queen Elizabeth London Olympic Park

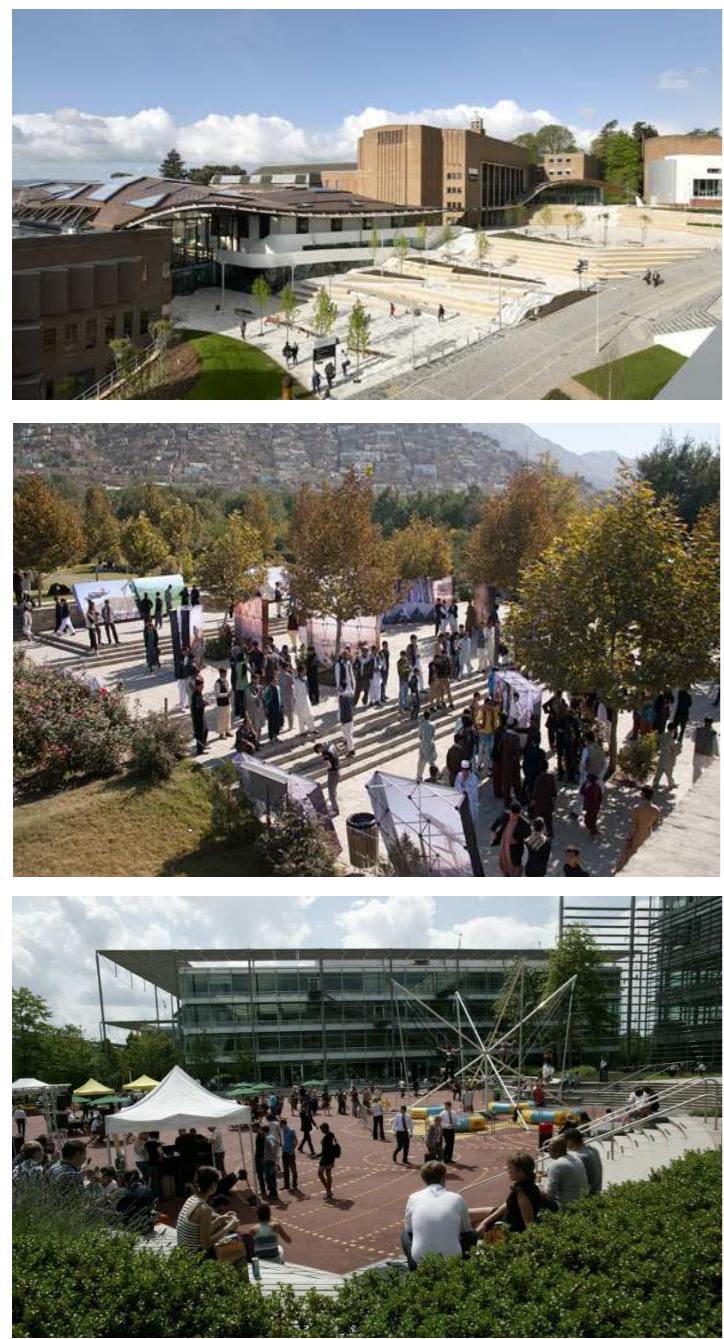
Steps and terraces work as informal gathering spaces in London Olympic Park to negotiate the level difference as the land slopes towards the canal



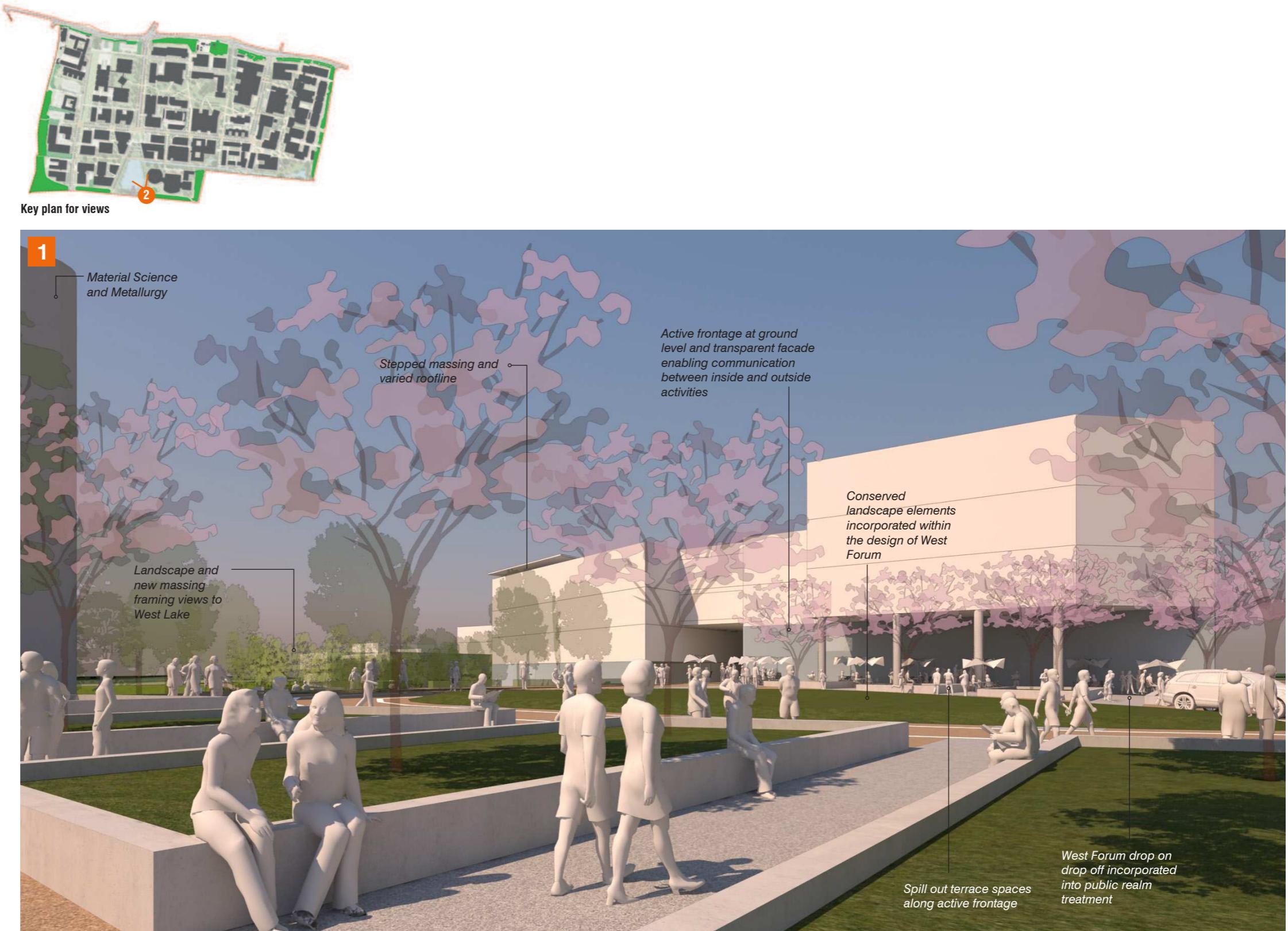
263. Queen Elizabeth London Olympic Park



Key plan for section



265. Precedents for the West Forum spaces

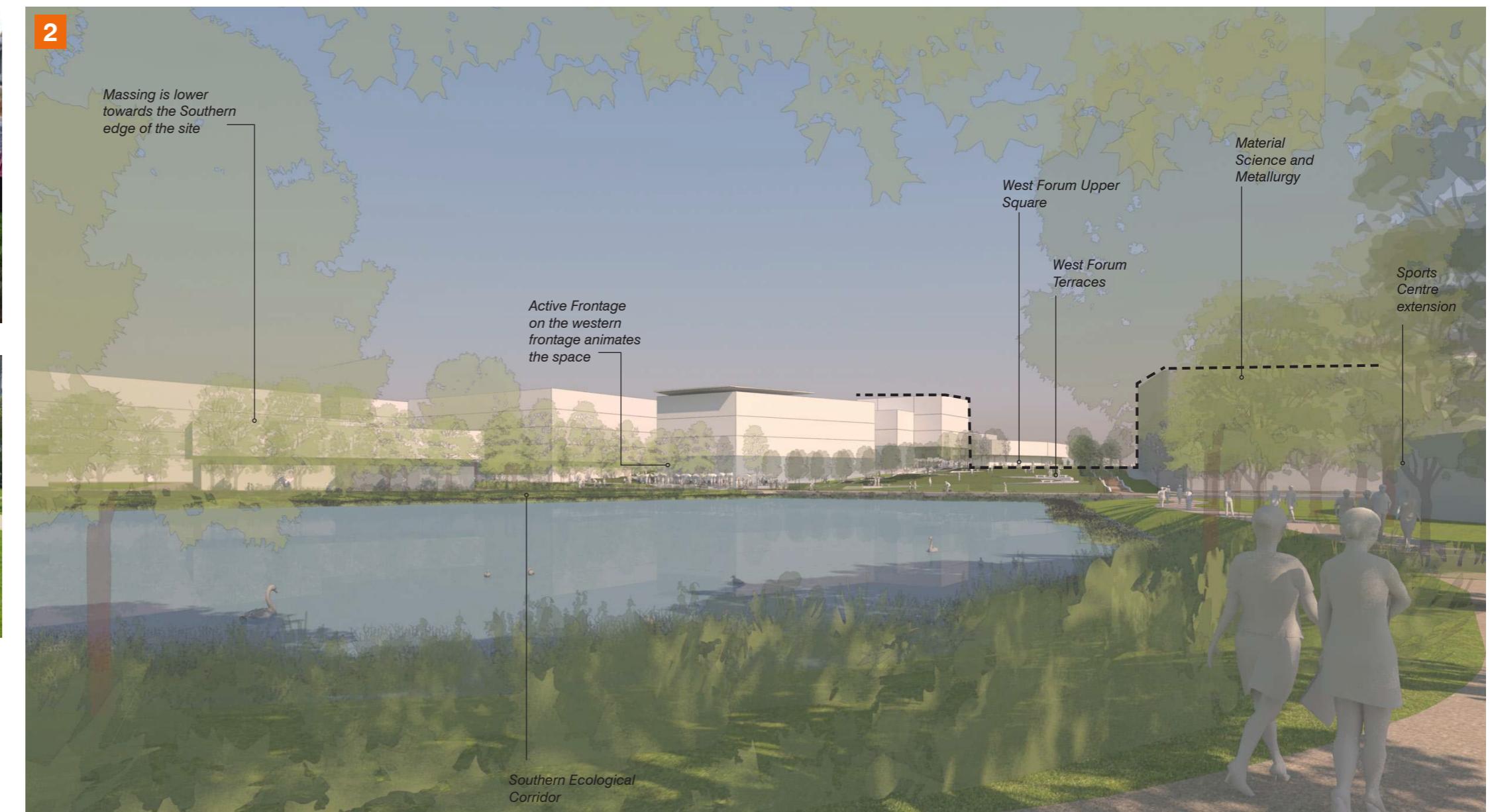


264. The West Forum spaces: West Forum Upper Square as viewed from Charles Babbage Road

Active uses and social spaces on the ground floors of commercial buildings facing the West Forum, ensure necessary active frontage and vibrancy to the open space. The Upper Square forms an important arrival point experience.



267. Precedents for West Forum spaces



266. The West Forum spaces: view from south of the West Lake to other Forum spaces

The southern-most part of West Forum will be developed as a dense woodland area accessible via a jogging / walking path that provides a vantage point to enjoy the natural setting and view the active area of the West Terraces and new development frontage from across the lake.

East Forum spaces

8.1.4 The East Forum is the second of two primary urban public spaces and forms a focus for activity for the east of the site. The East Forum forms part of the primary open space network and is one of key elements retained from previous consented masterplan.

Role in the Masterplan

- The space is transformed to become the focus of the Academic cluster to the east of the West Cambridge site.
- It is a new pedestrian route from the south-eastern corner of the site and connects the East Forum spaces to the Coton Footpath and Cambridge City Centre.
- As an arrival space from JJ Thomson Avenue it provides a key north-south link between academic clusters of West and North West Cambridge.
- Three distinct spaces are created: Upper Square (vehicular arrival drop off), Lower Square (student circulation) and East Pond (pedestrian arrival point from the city centre).

Surrounding land uses

- East Forum is a focus for shared facilities - located directly on the spaces are potentially, a canteen, a shared lecture theatre (potentially up to 500 seats - subject to further studies), other smaller lecture theatres, a library, as well as the potential for cafés and shops.
- These key shared facilities are located within two new buildings the Northern and Southern Forum Buildings.
- An Innovation Centre is located on the Upper Square.
- The spaces are a key gateway to the academic areas that lie to the north and west.
- An important visual link is established from the Upper Square towards The Green open space (JJ Thomson Garden) and the new Cavendish III Laboratory and Shared Facilities.
- Expansion spaces for the Department of Engineering provide new frontage and activity to The East Pond allowing this existing space to be an integral part of the new public realm.



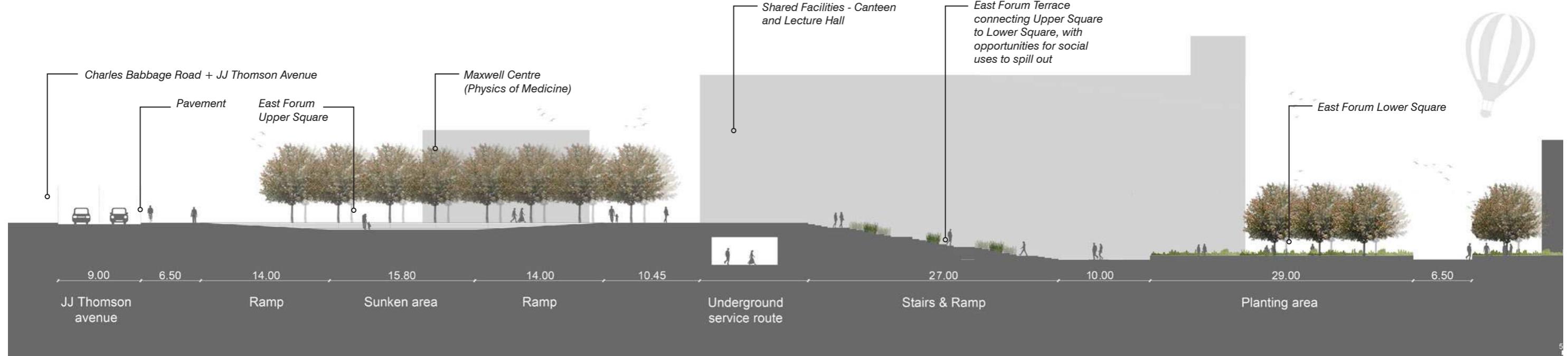
268. The East Forum spaces

Movement

- The East Forum spaces are pedestrian priority spaces, envisioned as a series of connected spaces that link the Coton Footpath, East Pond, JJ Thomson Avenue and Charles Babbage Road.
- Cyclists are restricted and vehicular traffic not permitted: a key cycle hub is located to the south of space accessed from the Coton Footpath - one of the places within the masterplan where cyclists can dismount, safely store their bicycles and continue into the site as pedestrians.



Key plan for section



269. The East Forum - section



270. Bailey Plaza of Cornell University by Michael Van Valkenburgh Associates

Open space being scaled by landscaped green islands, slopes and steps. The direction of paving material accentuates and highlights the plaza acting as a key open space of academic interaction.



271. Steps and Terraces of Kyusyu Shango University by Fukuoka-based landscaping company Design Network

Stepped terraces and steps forming an amphitheatre and outdoor gathering space for students.



272. Erie Street Plaza in Wisconsin, USA by StossLU architects illustrating interspersed soft landscape and tree planting zones within paved circulation

Soft landscape can be interspersed with hard paving so as to scale down or articulate a space but at the same time ensuring necessary pedestrian circulation and movement.



Description of East Forum spaces

8.1.5 Like the West Forum, East Forum is a sequence of spaces, which negotiate the topography at this part of the site, with each of the spaces on different levels stepping down from the Upper Square to the Coton Footpath.

- The **Upper Square** is an active urban and social space with informal meeting areas and potentially a vehicular drop off.
- The **East Forum Steps** are a series of landscaped steps and ramps that connect the Upper and Lower Squares.
- The **Lower Square** is the revitalised green space that incorporates the existing East Pond and connects the Forum spaces directly to the Coton Footpath.

Scale of Spaces

8.1.6 Each of the spaces in the sequence forming the East Forum has been scaled in accordance with the envisioned character and purpose, and tested against relevant precedents.

8.1.7 The East Pond area is approximately 130x80m, providing space for the existing pond plus a green area for relaxation. This space is open towards the south so it borrows open views from the agricultural lands.

8.1.8 The length of the East Steps and Upper Square combined is around 120m, with Upper Square being around 60x60m. Such a size provides a more protected, defined space which is suitable for interaction and gatherings.

8.1.9 The Sidgwick site provides an example of academic buildings clustering around a series of walkable spaces.

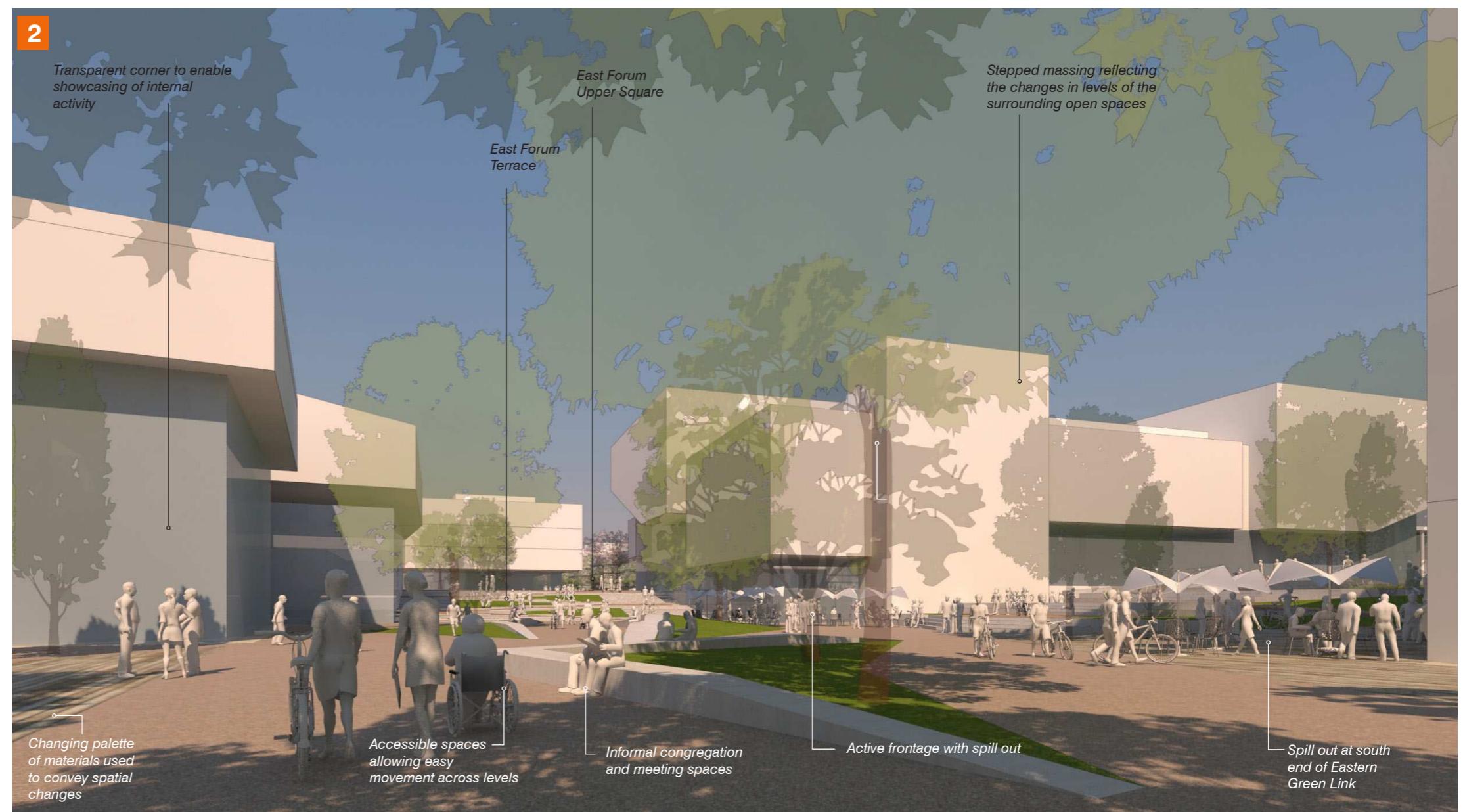


273. East Forum spaces: East Pond and southern gateway - view towards the East Forum from the Coton Footpath

The natural setting forms a serene arrival space for cyclists and pedestrians from the city centre. The views across the East Pond to academic life are framed by built form and landscape. This view shows how landscape elements could frame pedestrian circulation and guide it towards the East Forum.



Key plan for views



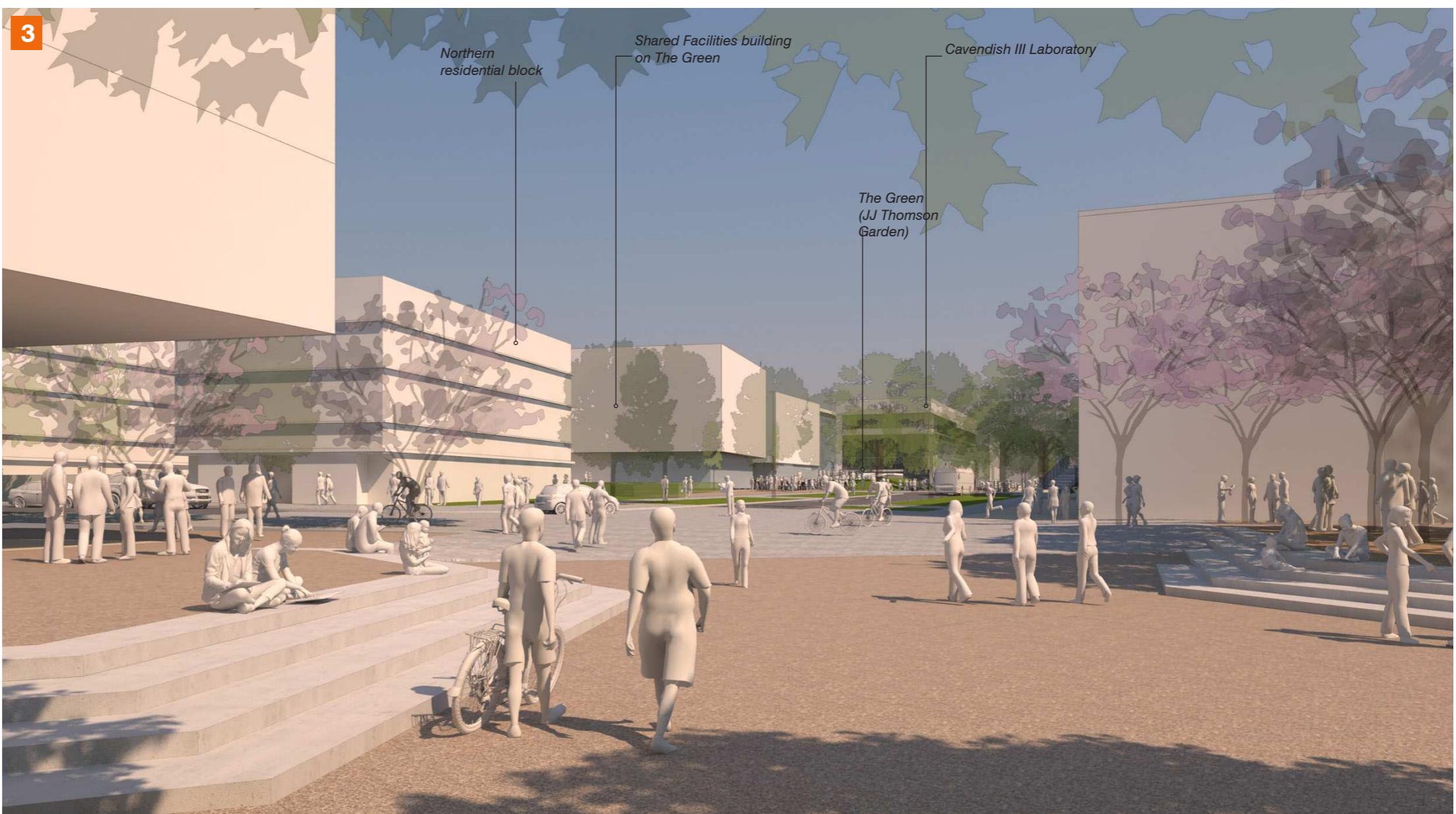
274. East Forum spaces - East Forum Lower Square



Key plan for views

Spatial sequence

- The existing East Pond is opened up and views allowed from Coton Footpath into a revitalised green space and the rest of the East Forum spaces.
- Key buildings form new active frontage that face south over the green space and East Pond. This provides active frontage and footfall through the space.
- A new pedestrian bridge over the East Pond provides a key link between the Coton Footpath and the East Forum spaces.
- The East Forum Steps connect the two main East Forum spaces, using the existing level change to provide interest and identity in this space.
- East Forum Lower Square will have highly active frontages and entrances to key uses such as the canteen and shared facilities.



275. East Forum spaces: Upper Square, view towards The Green and the new Cavendish III Laboratory

This view shows that the open space of The Green (JJ Thomson Garden) and a prominent corner of the Cavendish III Laboratory are visible from The East Forum Upper Square enabling these spaces to be visually connected and strongly link the site together.

The Green

8.1.10 The Green will provide much of the open space for informal recreation and contains one of the primary cycle and pedestrian linkages across the site. The Green is formed of a chain of Gardens, which together form a visual corridor that links east to west across the site and captures the views towards City Centre as well as the Listed Schlumberger Research Building, providing a new prominence for its characteristic roof line.

Character

8.1.11 The Green forms a strong east/west aligned open space formed by the proposed development. The positive visual and physical relationship between the built edges and the Green open space enables higher levels of natural surveillance. The east-west pedestrian and cycle link is aligned to strong desire lines and itself will generate activity and animation within the space.

8.1.12 A series of 'social hubs' can be created at the intersections with the north-south routes.

Materials

8.1.13 As The Green occupies an area of existing open meadow, the intent is to maintain a similar visual experience but to add variation and visual variance to the ground plane with native planting suitable to create enclosure and controlling the micro climate. Existing trees will be retained and new tree planting will be added to reinforce movement corridors, vistas and focal points.

8.1.14 The Green will be predominately soft. Permeable paving will be used to minimise run off and where run off does occur it will be collected within bio-retention areas where possible for distribution to the wider surface water network.

8.1.15 The Green intersects and overlays with the existing streets JJ Thomson Avenue and High Cross. These points of intersection inspire a change in character and the streets move to a more pedestrian orientated environment, also serving to slow traffic and prioritise pedestrians.



276. The Green - section

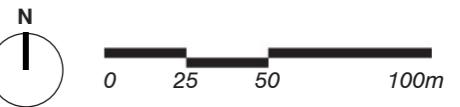


277. The Green - aerial view looking west



278. The Green - plan

A Gateway
B Social Hub
C Green Links
D Open Lawn
E Shared Facilities/Social Spaces
F Pedestrian/Cycle Route
G Service courtyards
H Covered Cycle Parking
I Shared Surface to Crossings



279. Landscape Reference - the Agrarian Landscape



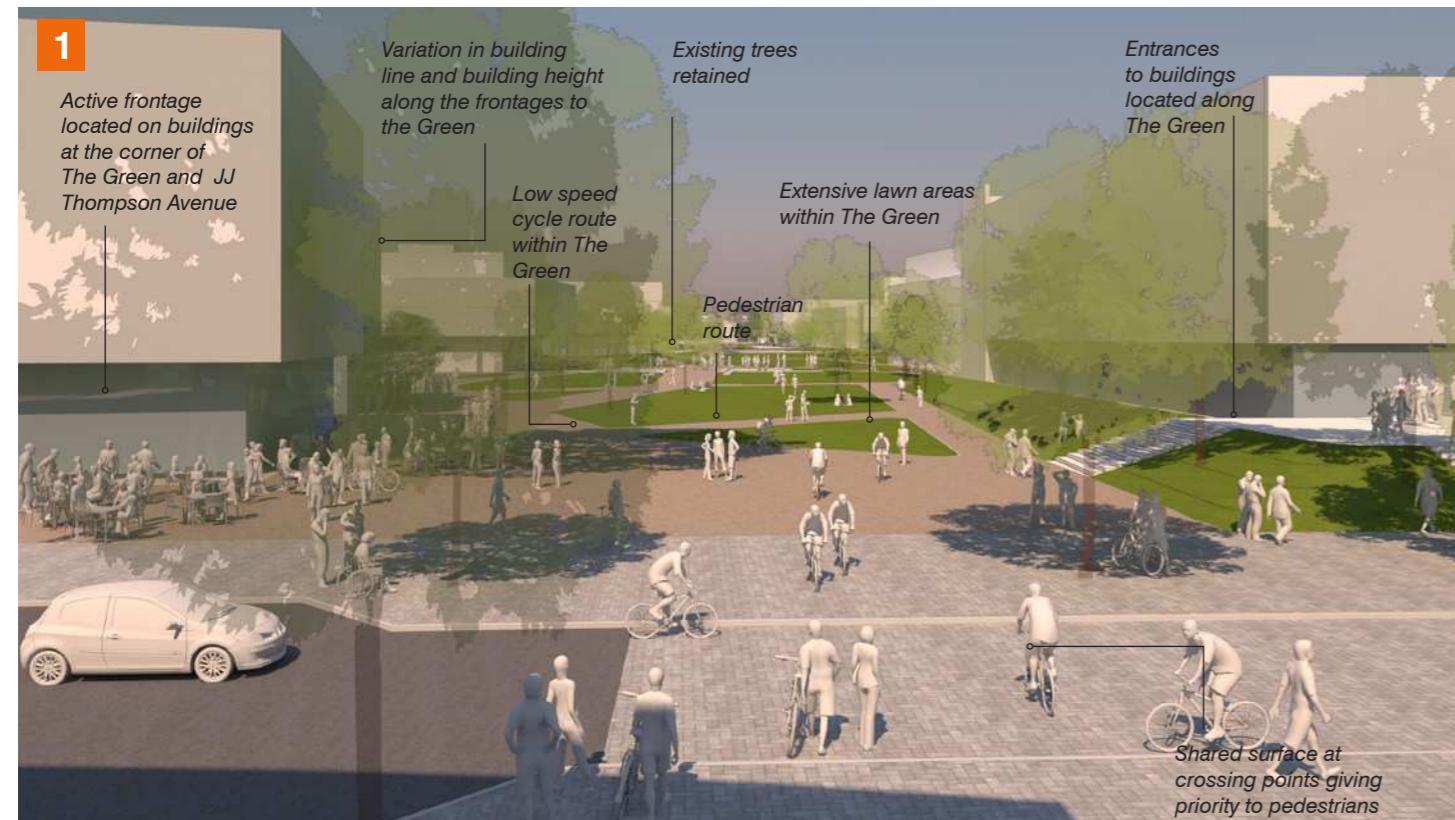
280. Social Hub aerial View



Key plan

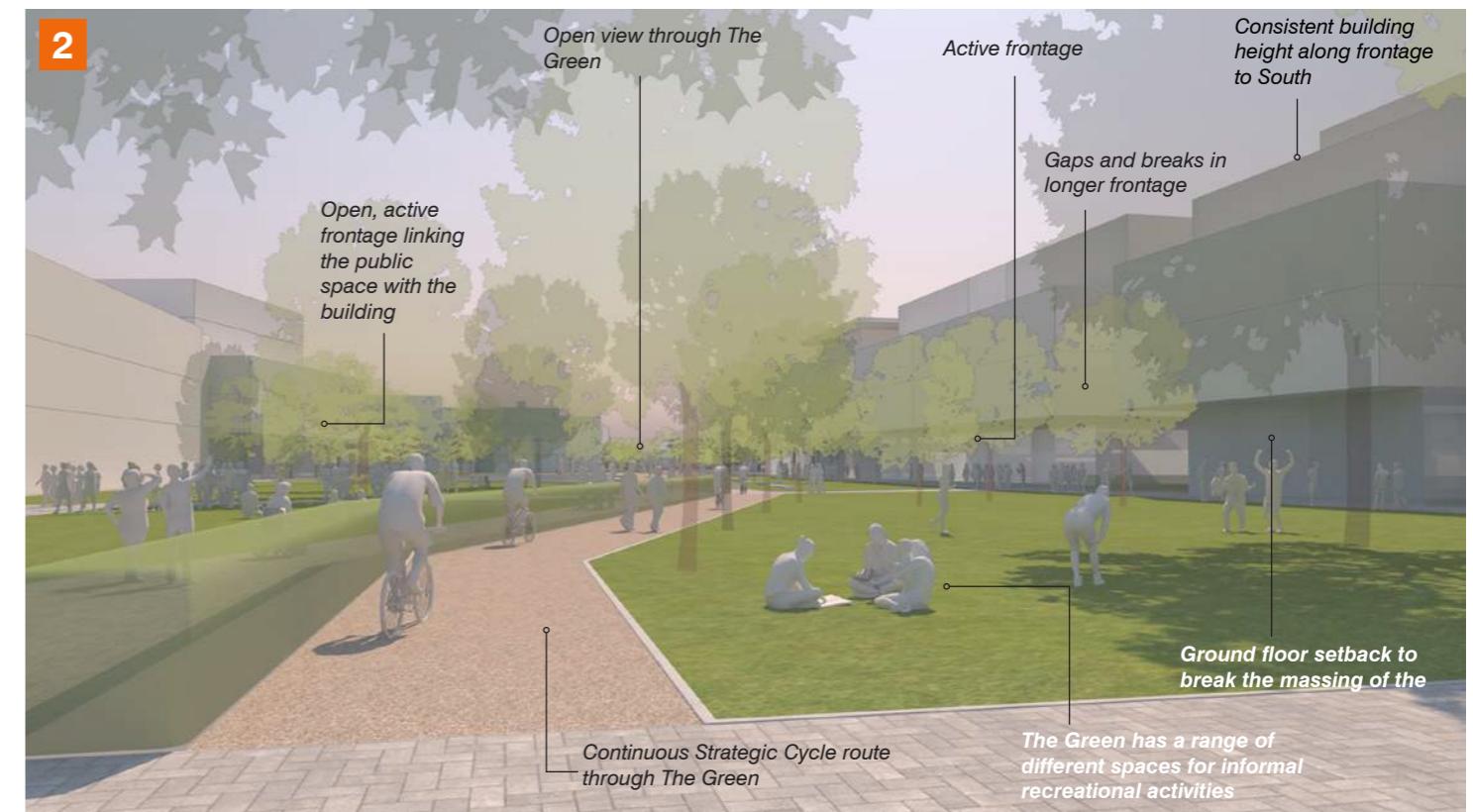


Key plan for views



281. The Green: View from JJ Thomson Avenue, looking towards the Schlumberger Research building, through The Green public open space.

The Green forms a series of connected Gardens that are shared by the campus. This green space forms a key east-west pedestrian and cycle link and the presence of this plus other social spaces ensure that it will be a vibrant space. This space will be shared by various academic departments and commercial occupiers alike.



282. The Green: The Green viewed from High Cross, looking east.

The Green forms a central open space providing a space for relaxation, reflection, informal interaction, spill-out and event space

Key elements

- The Green is made up of a series of four Gardens, with key space being the Central Garden. This space provides a major landscaped, open, green space in the heart of the masterplan and retains and incorporates the mature, existing trees located within this part of the masterplan;
- The other Gardens are High Cross Garden, JJ Thomson Garden and East Space.

Surrounding uses

- Development surrounding The Green forms frontage and provides overlooking to The Green. Smaller social spaces and building entrances are located along this space at ground floor, to ensure animation;
- A mixture of academic and commercial floorspace: this is one of the key areas of interchange and collaboration between the two use types;
- A new, early phase major Shared Facilities Hub provides activity onto JJ Thomson Garden;
- Additional academic uses to the east of the space reinforce the eastern academic cluster, and provides a new home for the Physics Department - the Cavendish III Laboratory;

- The Cavendish III Laboratory is a key new building that forms frontage along The Green. This building is also visible from the East Forum, visually connecting and drawing activity and footfall between these two spaces;
- The Schlumberger Research Building is located to the west of The Green. This building may eventually be supplemented by future expansion which will form new frontage and potentially, visually expand The Green west-wards. In the illustrative masterplan, proposed development is arranged to frame a new forecourt with a new address and drop off for Schlumberger at High Cross;
- Car parking and servicing is located away from The Green, to the north. In addition, cycle parking is located outside of The Green but close by within the adjacent Green Links.

Southern Ecological Corridor

8.1.16 The Southern Ecological Corridor will be retained and reinforced to form a strategic green connection and cycle link between the City and the countryside. It will incorporate the existing Coton Footpath, the existing canal, water bodies and existing landscape features to maintain and enrich the biodiversity which has already been established.

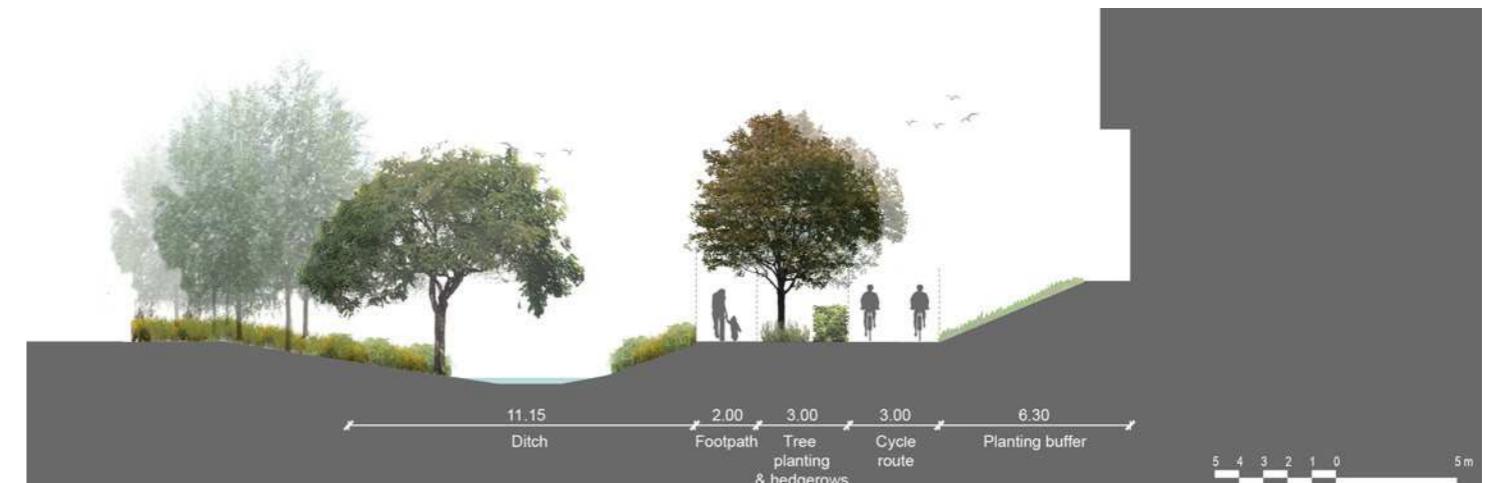
8.1.17 Along this Southern edge of the site the Canal will be enhanced and will be a key element in the site-wide sustainable drainage system. To the west of West Lake, the Corridor will incorporate the existing mature Oak trees and swale.

Character

8.1.18 Additional planting is proposed within the Southern Ecological Corridor to establish a protected micro-climate and mitigate the visual impact of the proposed development. The existing water bodies will need some modification to accommodate additional surface water runoff from the wider network proposed within the masterplan.

Materials

8.1.19 Existing mature trees will be maintained and augmented where possible. A coordinated street furniture palette will be developed that is visually relevant to the wider public realm setting whilst also takes design cues from the naturalistic setting of the waterside character.



284. Southern Ecological Corridor - section



283. Southern Ecological Corridor - plan

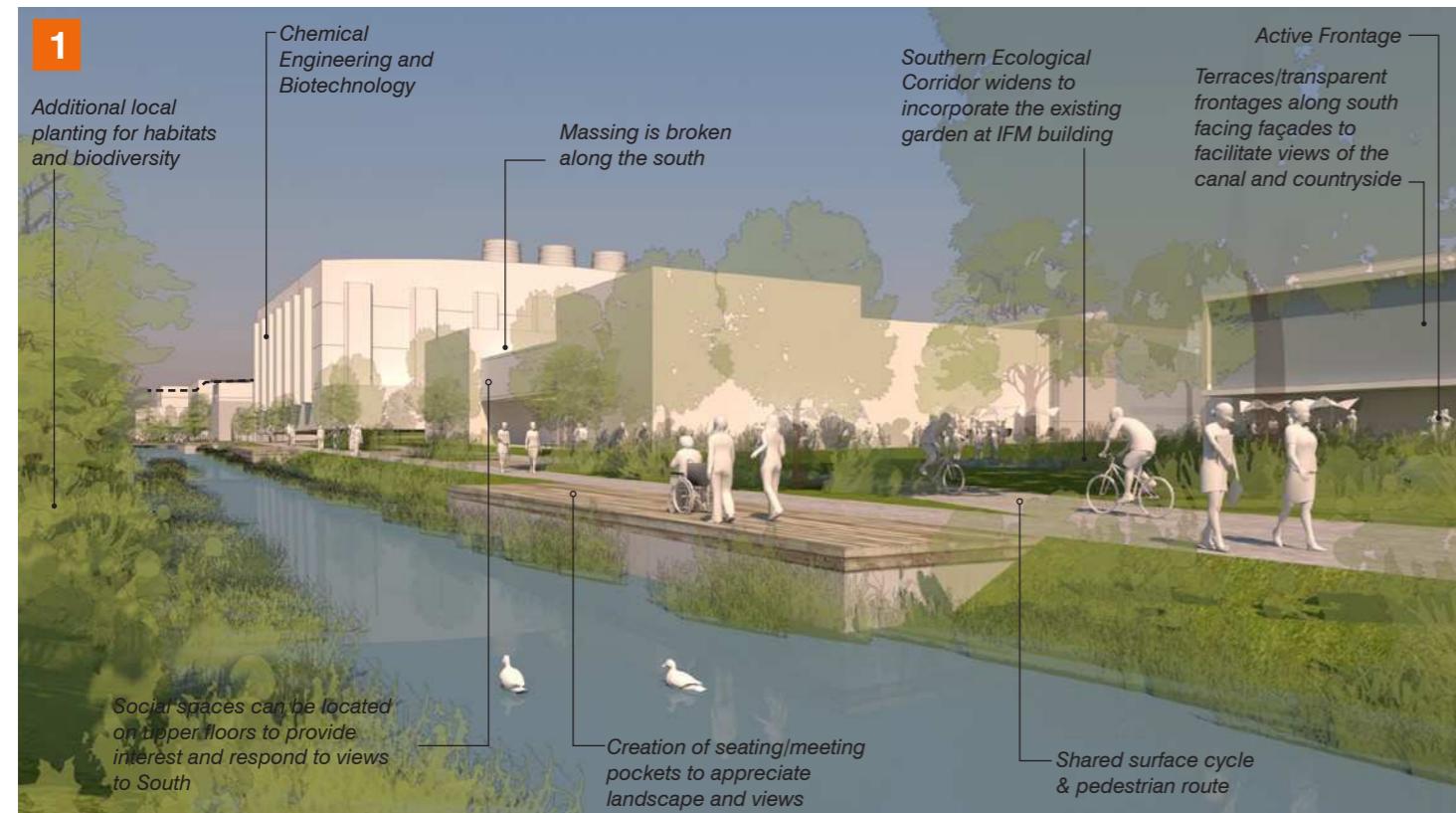
A East Pond
B West Lake
C Cycle & Footpath
D Canal
E Existing Trees & Swale
F Coton path
G West Forum Terraces
H Sports Centre



Key plan



Key plan for views



285. The Southern Ecological Corridor: Frontage to the Southern Ecological Corridor looking towards the West Forum

The canal-side Southern Ecological Corridor is a key cycle and pedestrian path which extends the Coton Footpath through the site. The Southern Ecological Corridor is also designed to be quiet and reflective in nature.



286. Southern Ecological Corridor: within the Western Commercial Cluster

The Southern Ecological Corridor at the western end forms a focus for activity within the Western Cluster. A predominantly green space, this incorporates existing mature trees with additional planting. Buildings form an informal frontage to the space and ensure activity and overlooking.

Surrounding Uses

- Existing buildings and new infill (academic and commercial) developments will form frontage to the Southern Ecological Corridor.
- A large cluster of commercial research space at the western end of the Southern Ecological Corridor, will provide a frontage with entrances and points of activity.
- The existing Sports Centre and its future expansion, which is a key destination within the masterplan, will draw visitors through the space, both during the week and in the evenings.
- New frontage with additional activity along the Southern Ecological Corridor ensures overlooking.

- New development frontage also provides a new urban character for Charles Babbage Road which will incorporate new primary frontage with building entrances along its length.
- New development contributes to the formation of a new Southern gateway to the site along the Coton Footpath at the East Pond.

8.2. Streets and Green Links

High Cross

8.1.20 High Cross is the main entry road to the site and is the main link from Madingley Road to West Forum and Charles Babbage Road. The intent is to create a main gateway and tree lined boulevard that welcomes visitors into the site.

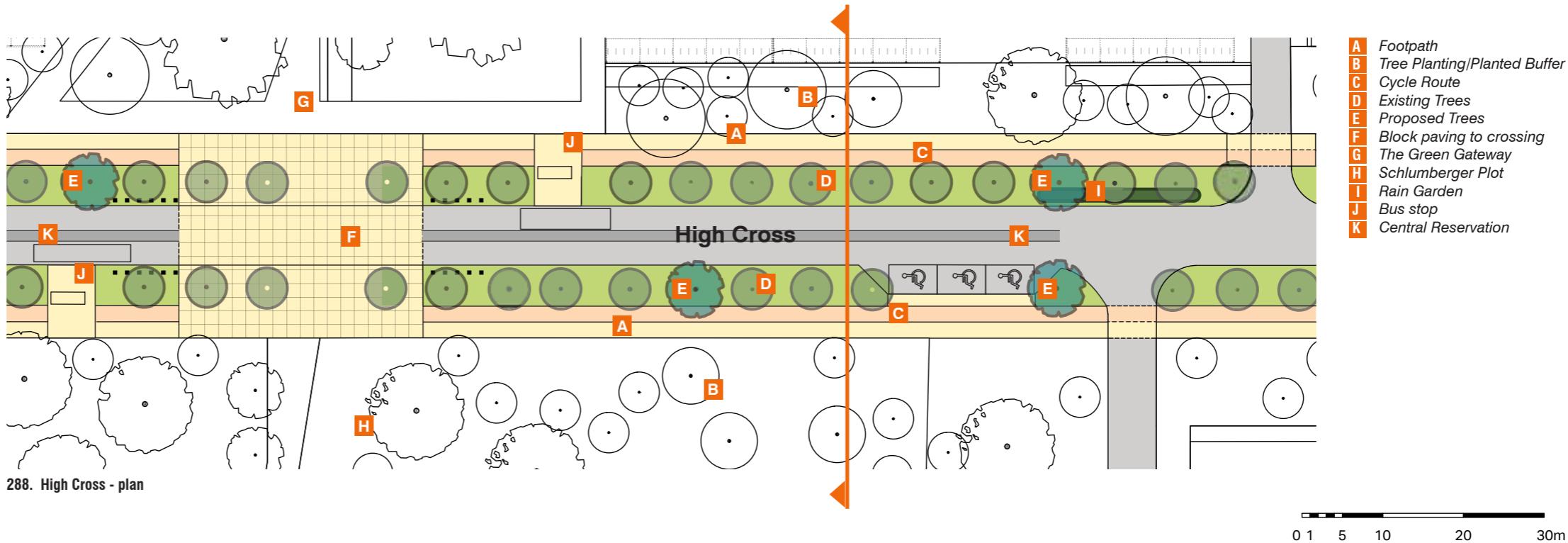
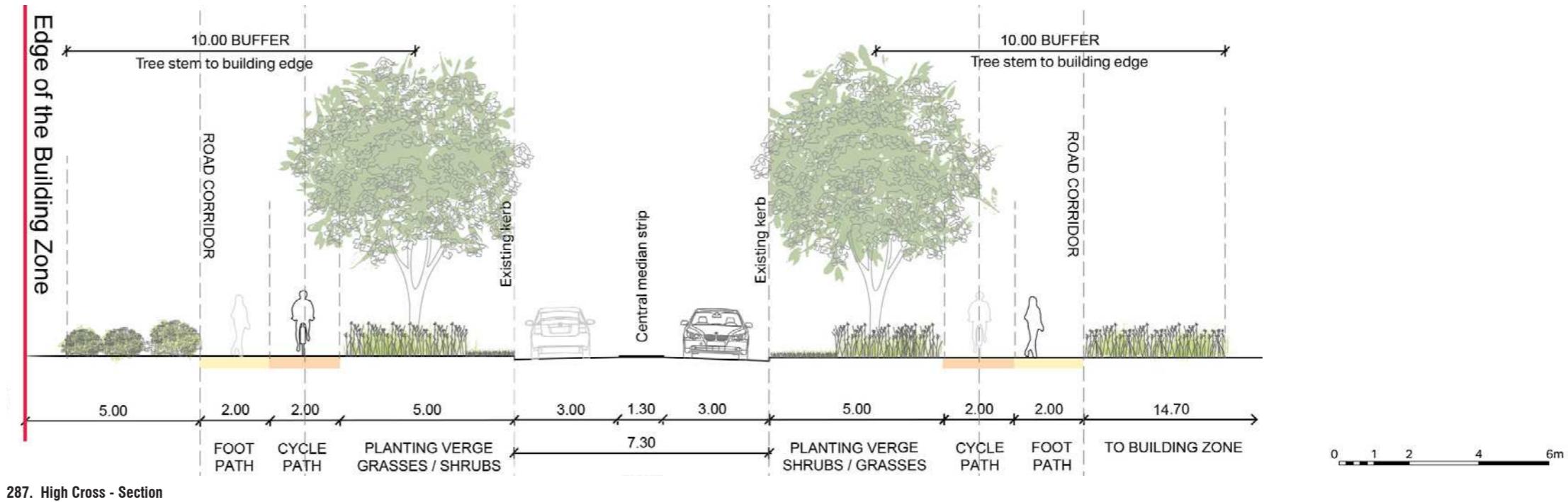
Character

8.1.21 The road will have one character all along its length however this character will change in two instances; where High Cross intersects with the Green and the West Forum. The street will adapt to the character of these open spaces by becoming a shared surface with additional planting in the case of the Green, and a shared surface crossing for the West Forum at the second intersection. The road will be characterised by the existing rows of trees and new under storey of planting. Additional trees will be introduced to break up the ridged tree planting and bring the continuation of the landscapes in the North West Cambridge Development through to the West Cambridge site.

8.1.22 The width of the road will remain the same with the addition of a change in paving at the shared surface crossing points and vertical markers to narrow the street and to create a pedestrian/cycle friendly, low speed environment. A series of planted rain gardens will be included where possible responding to the limited space between the existing trees and underground services. Swales will collect carriageway water runoff and act as points of interest and reduce the visual dominance of the road.

Materials

8.1.23 A foundation palette of street furniture, lighting and paving elements is defined to deliver unity along the street and where possible, existing lighting and street furniture will be retained or reused in new locations. Existing trees will be retained wherever possible.



JJ Thomson Avenue

8.2.1 JJ Thomson Avenue is the second entry road to the site. It is the main link between Madingley Rise and Madingley Road and the East Forum spaces. The intent is to create a tree lined boulevard and gateway into the site.

Character

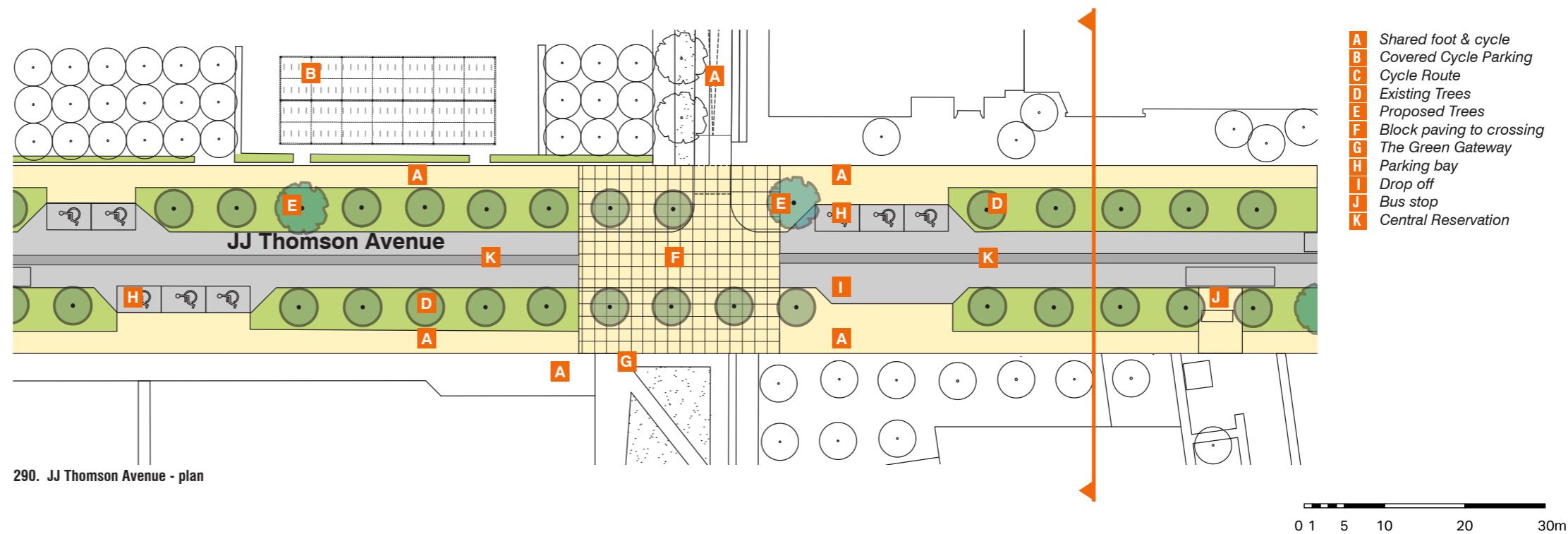
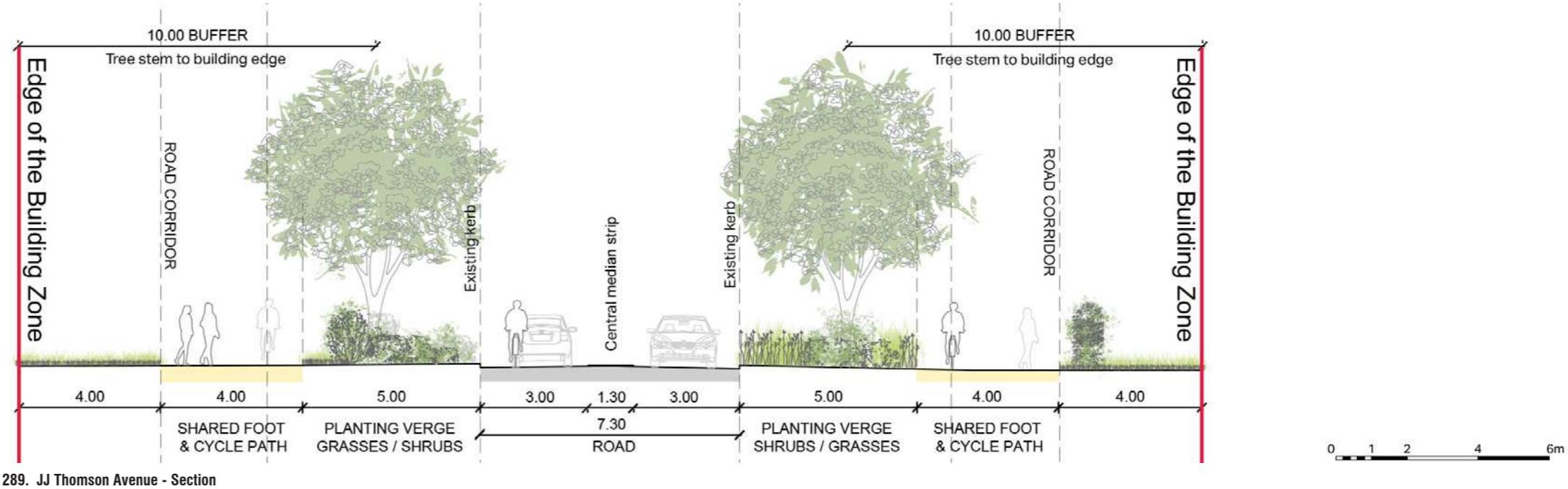
8.2.2 JJ Thomson Avenue will be characterised by the existing rows of trees and new under storey planting. The pedestrian crossings are a shared surface paving to facilitate pedestrian movement.

8.2.3 The Avenue will have one character all along its length however this character will change in two areas when the Avenue intersects with the Green, and when it intersects with the East Forum. In these two instances the street character will adapt to the character of these open spaces by becoming a shared surface that has additional planting in the case of the Green, and a shared surface link at the East Forum at the second intersection.

8.2.4 The width of the Avenue will remain generally the same. The existing bus stops will be retained on-street to pick up and drop off passengers and the street profile will be changed in places to allow for on street parking spaces.

Materials

8.2.5 A foundation palette of street furniture, lighting and paving elements is defined to deliver unity along the Avenue and where possible, existing lighting and street furniture will be retained or reused in new locations. Existing trees will be retained where ever possible.



Key plan

Charles Babbage Road

8.2.6 Charles Babbage Road will act as a new Forum Link connecting the two key points for arrival and activity within the site, the East and West Forum. The current form of the Road is a formal avenue with a single species of tree, and the intent is to introduce a playful and informal structure reducing the scale of the road, and to reflect the range of uses and crossing points along the street.

Character

8.2.7 The Road has been divided into several distinct areas of character relating to the associated land use; reflecting where arrival points occur; where activated frontages are located; the location of bus stops and on street car parking; and the location of drop off points.

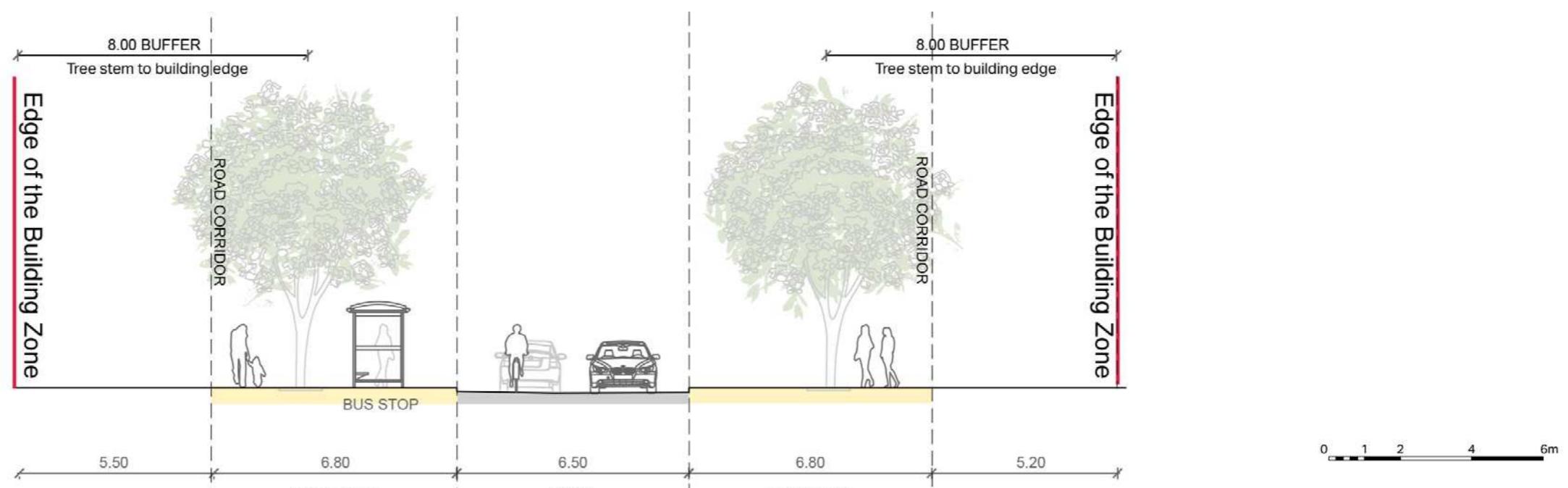
8.2.8 The principal initiative of the design strategy defines character zones by varying tree species and planting which will augment the existing tree design. The public realm will also be enhanced by the introduction of bio-retention rain gardens, creating pocket landscapes along the street, whilst maintaining permeability for pedestrians to freely cross the road.

8.2.9 The width of the Road will remain the same, but with the addition of a change in paving at shared surface crossing points and vertical markers to create a pedestrian/cycle friendly, low speed environment.

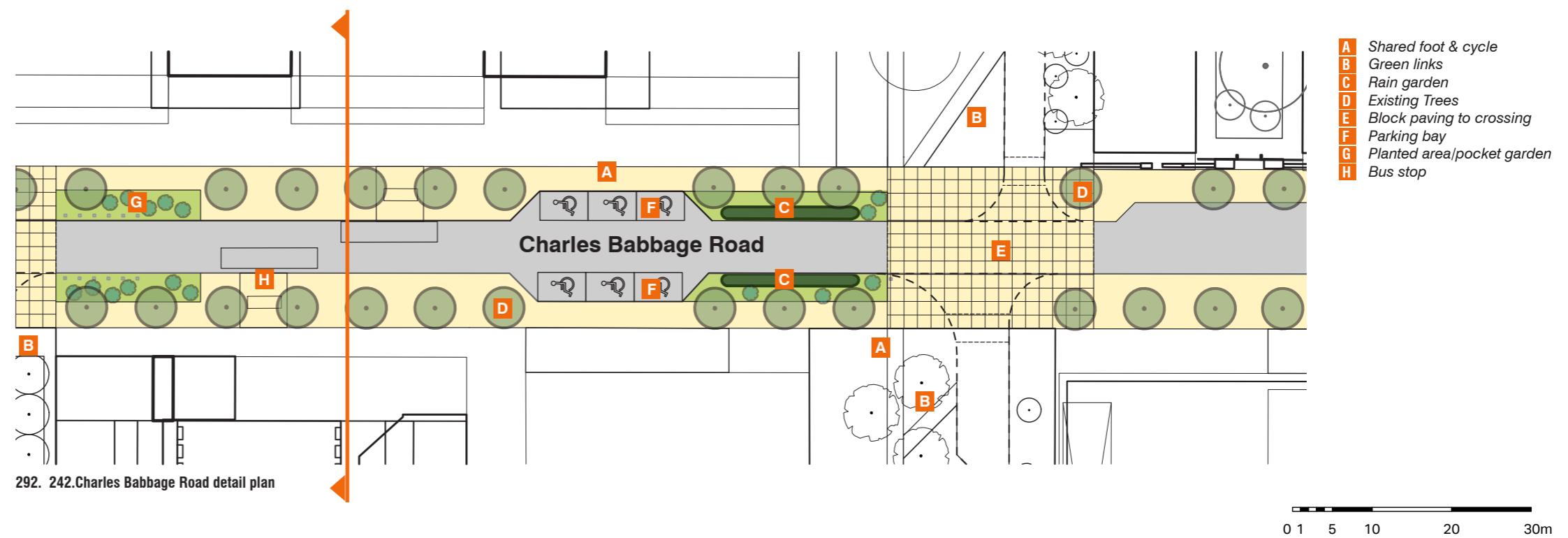
Materials

8.2.10 A foundation palette of street furniture, lighting and paving elements is defined to deliver unity along the road and where possible existing lighting and street furniture will be retained or reused in new locations. Existing trees will be retained wherever possible.

8.2.11 Crossing points will not be raised tables, but will be noted with a change of surface material to reduce traffic speed and create a shared surface.



291. 241.Charles Babbage Road Section



Key plan

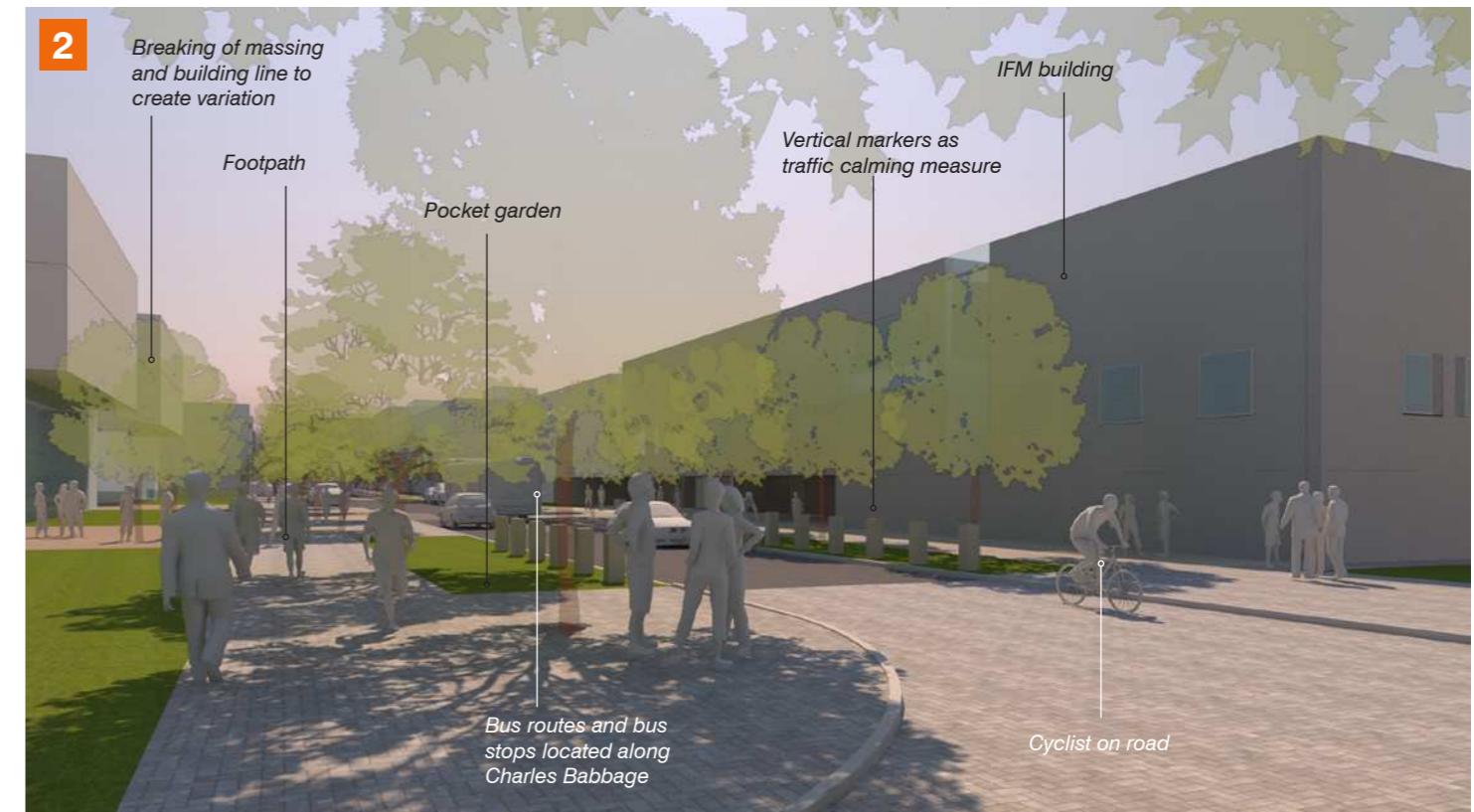


Key plan for views



293. JJ Thomson Avenue Character Area - view along JJ Thomson Avenue, looking south to the East Forum spaces

The Green open space is prominent from JJ Thomson Avenue. The Cavendish III Laboratories form a strong frontage to the street and a prominent corner visible from the East Forum, enabling these spaces to communicate and create a strong link.



294. Southern Character Area: Frontage to Charles Babbage Road - view towards the East Forum

The view shows how landmark elements can highlight key pedestrian spaces and provide new enclosure to Charles Babbage Road, transforming it into a street with a more urban feel.

Western Access / Ada Lovelace Road

8.2.12 The Western Access Road will provide cycle and pedestrian access to the western side of the site from Madingley Road to the commercial cluster. A new access point will be provided in later phases of development.

Character

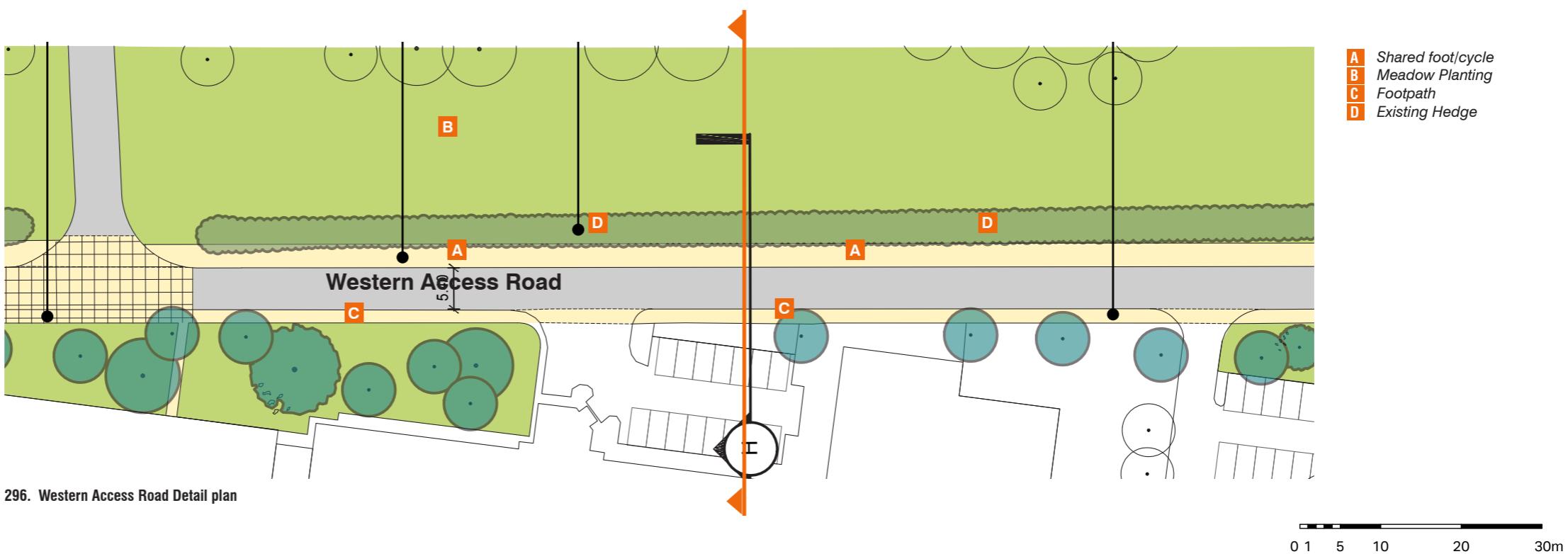
8.2.13 The width of the road will remain the same (5.4m to Western Access Road in the north and 6.5m to Ada Lovelace Road in the south) with the addition of a change in paving at shared surface crossing points.

8.2.14 The street will be characterised by the retention of the existing hedgerow on the eastern side of the street, at the boundary to the Schlumberger site. There will be the addition of low shrub planting along the street, (types of planting are limited by the existing underground gas main line and easement). However, the existing row of trees towards the south of the street will be maintained where possible.

8.2.15 To Ada Lovelace Road, the public realm will also be enhanced by the introduction of bio-retention rain gardens along the roadway where possible, to collect roadway run off.

Materials

8.2.16 A foundation palette to match the other roads will be implemented, unifying the road network whilst providing individual character.



Eastern Green Link

8.2.17 The Link has origin in an existing service street which served both pedestrian and vehicular access to existing buildings and car parks. It is located between a series of existing academic buildings. Development of new academic and shared facilities buildings around the Link will transform this service street into a cohesive, more urban, pedestrian environment.

8.2.18 The Eastern Green Link will be one of the primary Green Links within the proposed masterplan. This pedestrian only space will form the main public realm element within the eastern, predominantly academic cluster where it is expected to draw a significant footfall.

8.2.19 In the southern part, the Link connects to the East Forum spaces and, from there, to the Coton Footpath and the key pedestrian gateway in the south eastern corner of the site.

8.2.20 In the northern part, this Green Link joins with the Arrival Square, a public space which links to JJ Thomson Avenue and the vehicular gateway at Madingley Road.

Role in the masterplan

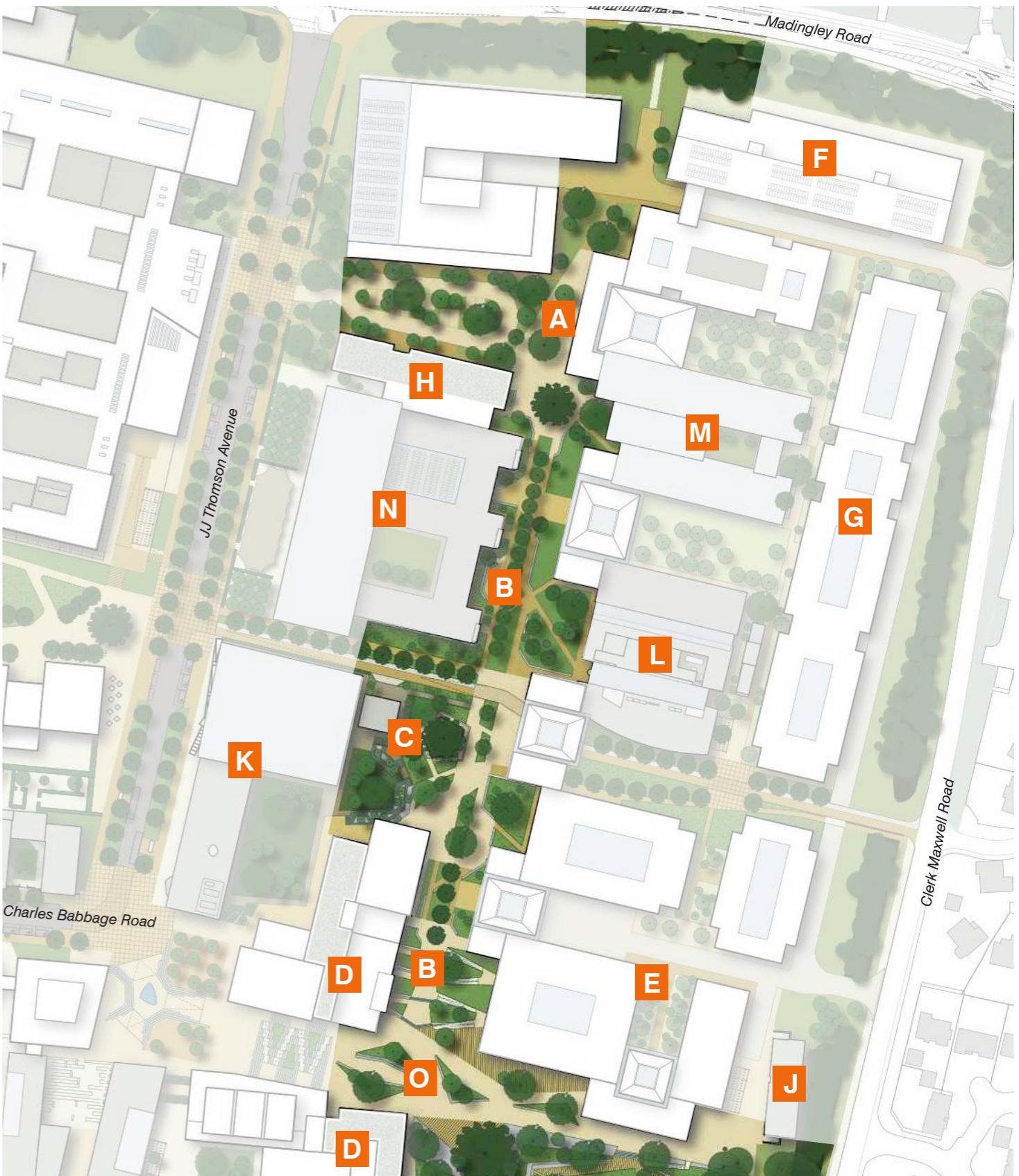
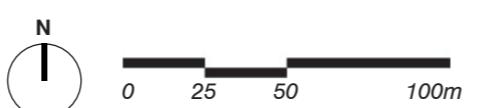
- A large part of the new academic space to be provided in West Cambridge is organised along this Link. At present this includes space for the consolidation of the Engineering Department at West Cambridge as well as retained related academic facilities such as the Computer Laboratory within the William Gates Building and the Maxwell Centre (Physics).
- This Link will be the key connective space for the Eastern cluster. Existing buildings, new academic uses and activities (such as waiting areas and informal space for interaction between students and faculties of various disciplines), can spill out into it.



Key plan

- To the north of the Green Link a landmark reception building for the Department of Engineering is located. This will be visible from JJ Thomson Avenue and will form frontage to the Arrival Square which will accommodate drop on/drop off for visitors and taxi's.
- At the point where the Eastern Green Link meets the The Green, East Garden, a primary focal space for the area, will be formed. From this space there will be pedestrian and cycle connection to the other spaces of the Green in the west and to Clerk Maxwell Road in the east;
- The East Garden is located centrally within the academic cluster and forms the first in a chain of gardens and spaces that form The Green open space that traverses the site from east to west;
- This framework allows for the incorporation of existing buildings, which can potentially be adapted to form frontage to this space, and potentially add entrances and/or active uses, either through reconfiguration of existing buildings or addition of elements.

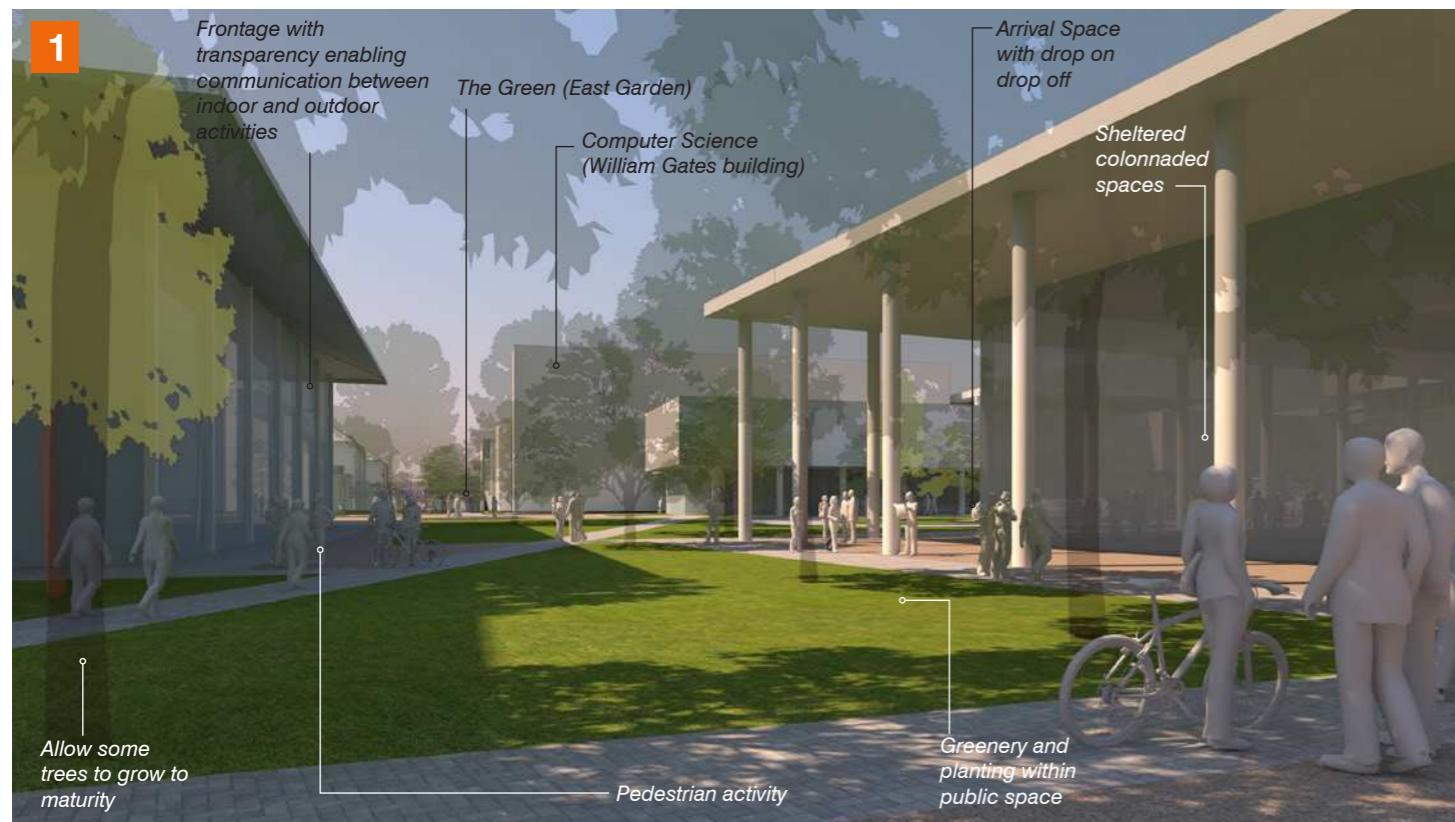
A	Arrival Square and Reception Building
B	Eastern Green Link
C	East Garden (part of The Green)
D	Shared Facilities Building
E	Later phase academic development
F	Multi storey car park
G	New development
H	Computer Science extension
I	Whittle Laboratory retained and extended
J	MRI Research Centre - retained
K	Maxwell Centre and Physics of Medicine
L	CAPE Building - retained
M	Roger Needham Building - retained
N	William Gates Building - retained
O	East Forum - Lower Square



297. Eastern Green Link



Key plan for views



298. The Eastern Green Link - looking south towards the Arrival Square and the East Forum in the distance.

The Central Green Link creates a sheltered, pedestrian environment for academic buildings spill out into, for social interaction and most importantly circulation between the Arrival Square, the Green and East Forum spaces.



299. The Arrival Square as viewed from JJ Thomson Avenue.

Arrival Square and landmark reception building, act as a key arrival experience for visitors coming to the area.

Central Green Link

8.2.21 This Link is comprised of several existing spaces which the masterplan proposes to join and transform with new landscaping.

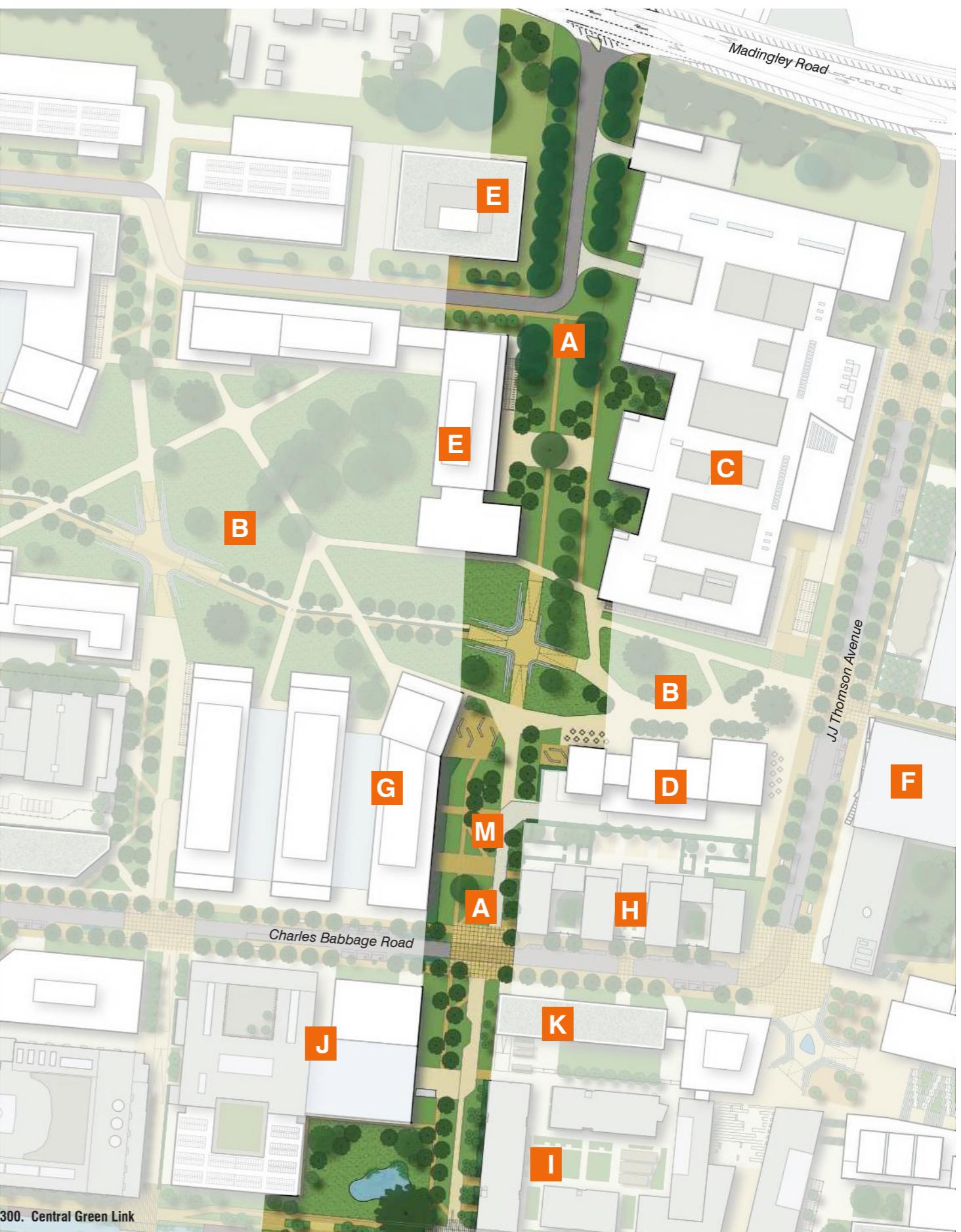
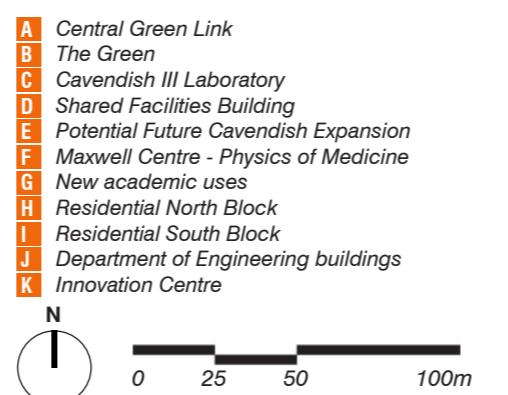
8.2.22 In the north, the Link is formed from the former Vet School approach, where it incorporates the existing mature lime trees. In the southern part, the Link is formed from the a current service access from Charles Babbage Road, which will be widened to allow for a landscaped corridor.

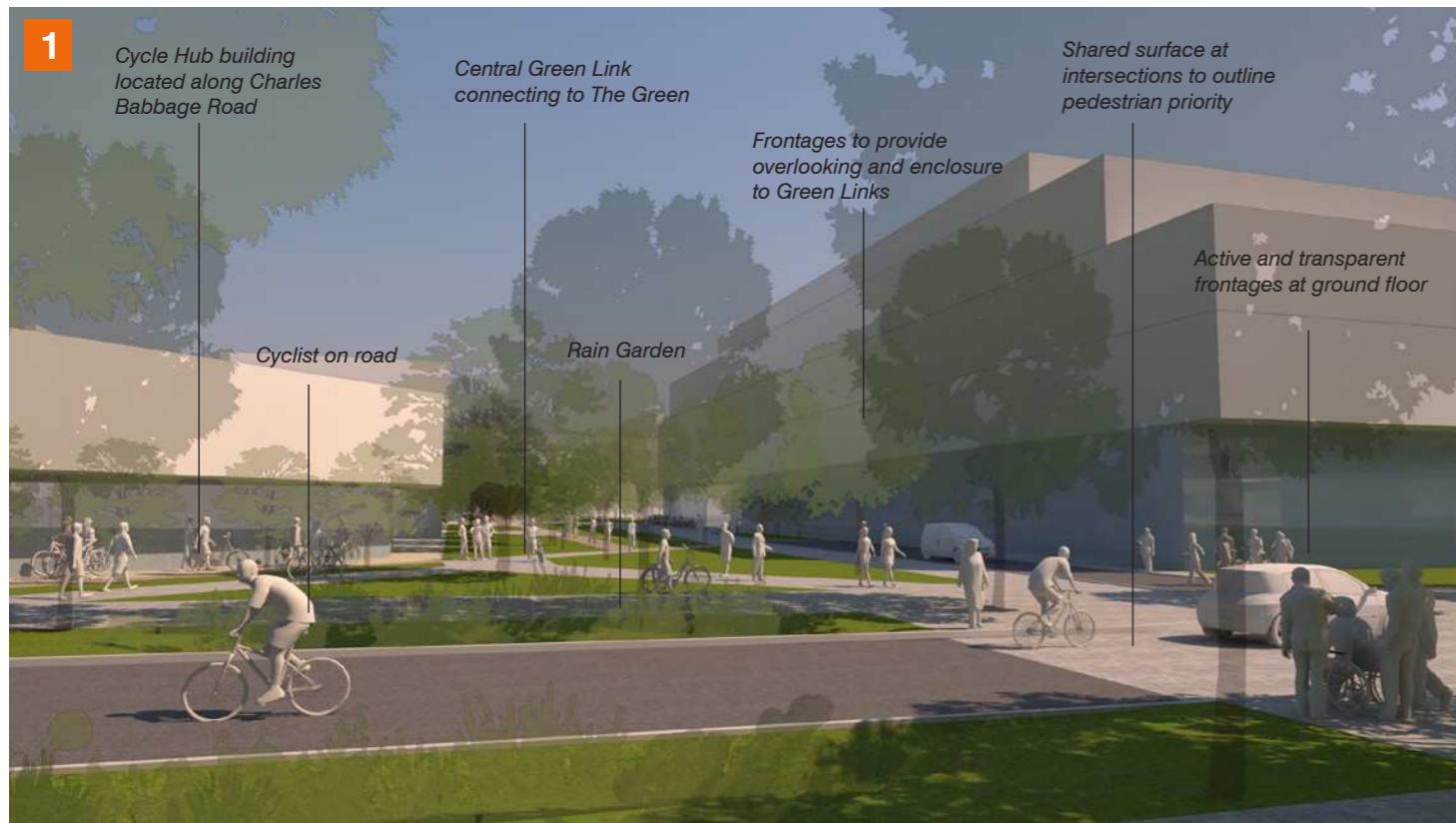
Role in the Masterplan

- This Link provides a site-wide north-south connecting space, between the Southern Ecological Corridor in the south to Madingley Road in the north, in a pedestrian friendly and landscaped environment;
- At the southern end, where the link meets the Southern Ecological Corridor, a widened area will be provided suitable for informal small gatherings and a space that will allow tree planting to grow to maturity;
- There will be no vehicular traffic crossing The Green (other than emergency vehicles where required), but in the north and the south of the Green Link vehicular access will be allowed to provide servicing to adjacent developments.



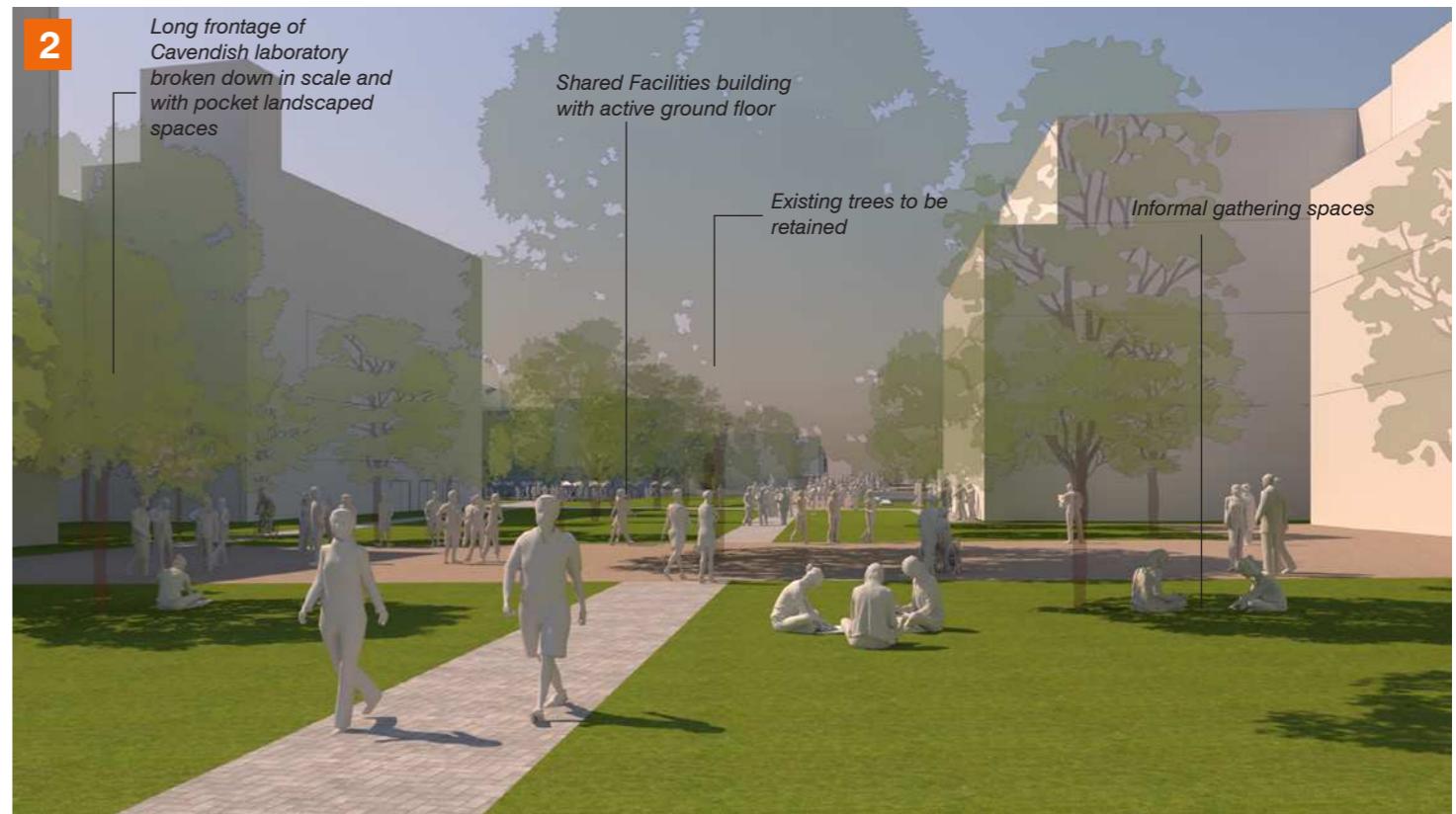
Key plan





301. Secondary Green Links - view from Charles Babbage looking north towards The Green

View shows how development and landscape elements could frame key links and guide pedestrians towards The Green open space to the north. Links provide additional greenery along Charles Babbage Road.



302. Central Green Link - view looking south across The Green towards Charles Babbage Road



Key plan for views

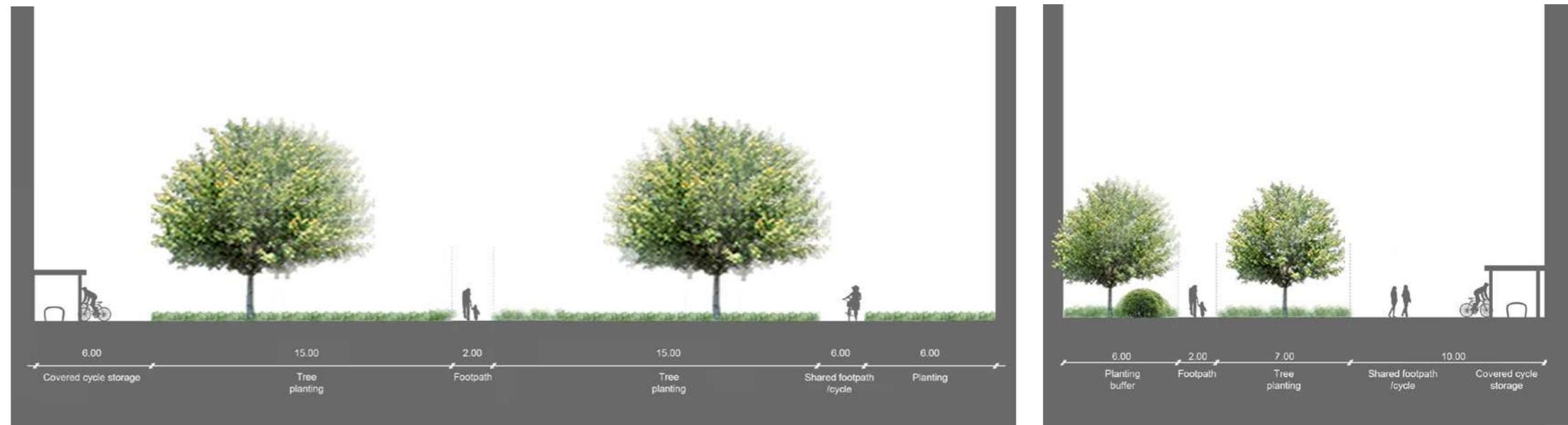
8.2.23 The intent of the Green Links is to create cycle and pedestrian friendly walkways which connect between the key open spaces (The Green, the Forums and the Southern Ecological Corridor).

Character

8.2.24 The Green Links will have a distinct character from other connecting routes, highlighted by parkland trees that relate to trees in some of the Central Gardens, pocket gardens and under storey planting and flower beds.

Materials

8.2.25 Existing trees in Green Links will be maintained and additional ones will be planted to enhance the linearity of these links. A comprehensive palette for the street furniture, light and paving elements is defined to deliver unity along these links and respond to the site wide context.



Key plan



303. Central Green Link section A

304. Secondary Green Link section B



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