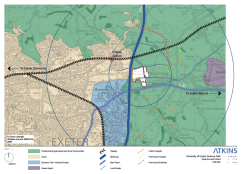
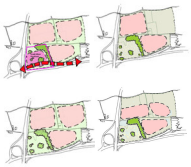
University of Exeter Science Park

Supplementary Planning Document

Adopted November 2008





East Devon District Council

Contents

1 Introduction

1.1 This Supplementary Planning Document (SPD) presents planning and design guidance on the approach to developing the University of Exeter Science Park (UESP). It follows an Issues and Options paper that was consulted on with the public and other stakeholders during winter 2006/07 and a Preferred Options document consulted on in winter 2007-08.

1.2 The SPD seeks to define, through development principles, the role, function and character of the proposed Science Park. The objective of the SPD is to achieve sustainable high quality development that will fulfil precisely the need and definition for UESP. The SPD considers a range of matters including:

- Site selection and proposed development boundaries;
- Development layout and masterplanning, including the siting of development within the site;
- Landscape design, open space and patterns of movement;
- Development densities and gross floorspace;
- Building heights and massing;
- Quality of design and materials;
- Uses and activities within UESP;
- Traffic and access arrangements, including for public transport, pedestrian and cycle access, and parking;
- Phasing, the pattern of expansion and key infrastructur requirements;
- The approach to planning control at the site, particularly with regard to permissible uses, and quality of design;
- The requirements of a planning application for UESP development, including the scope of the Environmental Impact Assessment that will be required when an application is submitted.

1.3 The SPD seeks to draw a balance between providing robust guidance and advice to landowners and developers and avoiding unnecessary constraints to masterplanning creativity, development opportunity and viability.

1.4 In preparing this document, discussions have been held with stakeholders including Exeter City Council, Devon County Council, The University of Exeter, The Met Office and the South West Regional Development Agency.

Background and Site Selection

1.5 The site is at Redhayes, the site of an Edwardian country house, now demolished, lying immediately north east of Junction 29 of the M5, on the western edge of East Devon District.

1.6 Redhayes lies within East Devon District and within the boundary of an area identified in the adopted Devon Structure Plan as a location where developments (including UESP) are to take place at the Exeter Principal Urban Area (PUA) in the period 2001 to 2016. Development at UESP, as set out in policy ST19 of the adopted Structure Plan is anticipated to comprise 25 hectares (62 acres) in the period to 2016.

1.7 The Redhayes location has been selected by East Devon District Council in consultation with Exeter City Council and Devon County Council following an evaluation of three main site options. These

were assessed in 2003 by economic development consultants SQW. The sites examined were Redhayes, land at New Court within the Exeter City administrative area, and the Skypark site adjacent to Exeter Airport.

1.8 The three locations were reviewed in terms of fitness for purpose to accommodate science park development from the perspective of site planning and economic viability, and compatibility with the planning policy context, including sustainability aspects. The three sites on the short list were considered to be the only realistic opportunities for science park development at Exeter when site availability, relationship to other development/uses and proximity to transport links were considered.

1.9 Factors considered in comparing and evaluating sites were (not in any priority order):

- Physical development constraints;
- Ability to achieve critical mass – sufficient size;
- Potential to provide and attractive working environment;
- Accessibility to the University, RD&E Hospital, the Met Office, the airport, the city centre and local facilities and services;
- Availability of public transport;
- Site access;
- Proximity to a motorway junction;
- Visibility and profile;
- Availability of telecommunications links;
- Availability of mains services.

1.10 These factors were weighted and each site scored. Both Redhayes and New Court scored highly, but Redhayes was a clear preferred location because of the restricted size of the site at New Court and Redhayes' strongly marketable location. Skypark was felt to be too remote from the M5 and Exeter. Although New Court scored slightly better than Redhayes in respect of ability to provide infrastructure, its restricted size meant that it was not preferred over Redhayes.

1.11 The Issues and Options report prepared as a precursor to the SPD asked for comments on the Redhayes location for UESP. Responses were fairly evenly split, with a small majority supporting the location. Those alternative locations suggested for the UESP were Skypark, Cranbrook new settlement, New Court or the University campus. These have all been considered previously and would not allow delivery of the Science Park as conceived in the Structure Plan which requires this to be in East Devon at the Exeter PUA.

1.12 Therefore, for the same reasons that Redhayes was initially selected the alternatives are considered to remain inferior, and the Preferred Option is that Redhayes should be the location for the University of Exeter Science Park.

Regional Setting

1.13 Exeter is an historic cathedral city with a population of around 117,600 people, and has a catchment population of well over three times that number. The City is well served by road, rail and air and, aided by the presence of the University, cultural and retail strengths and an attractive setting, has experienced strong economic growth over the past 20 years.

1.14 Exeter is a key economic driver for the region. Current levels of employment growth in the Exeter travel to work catchment area

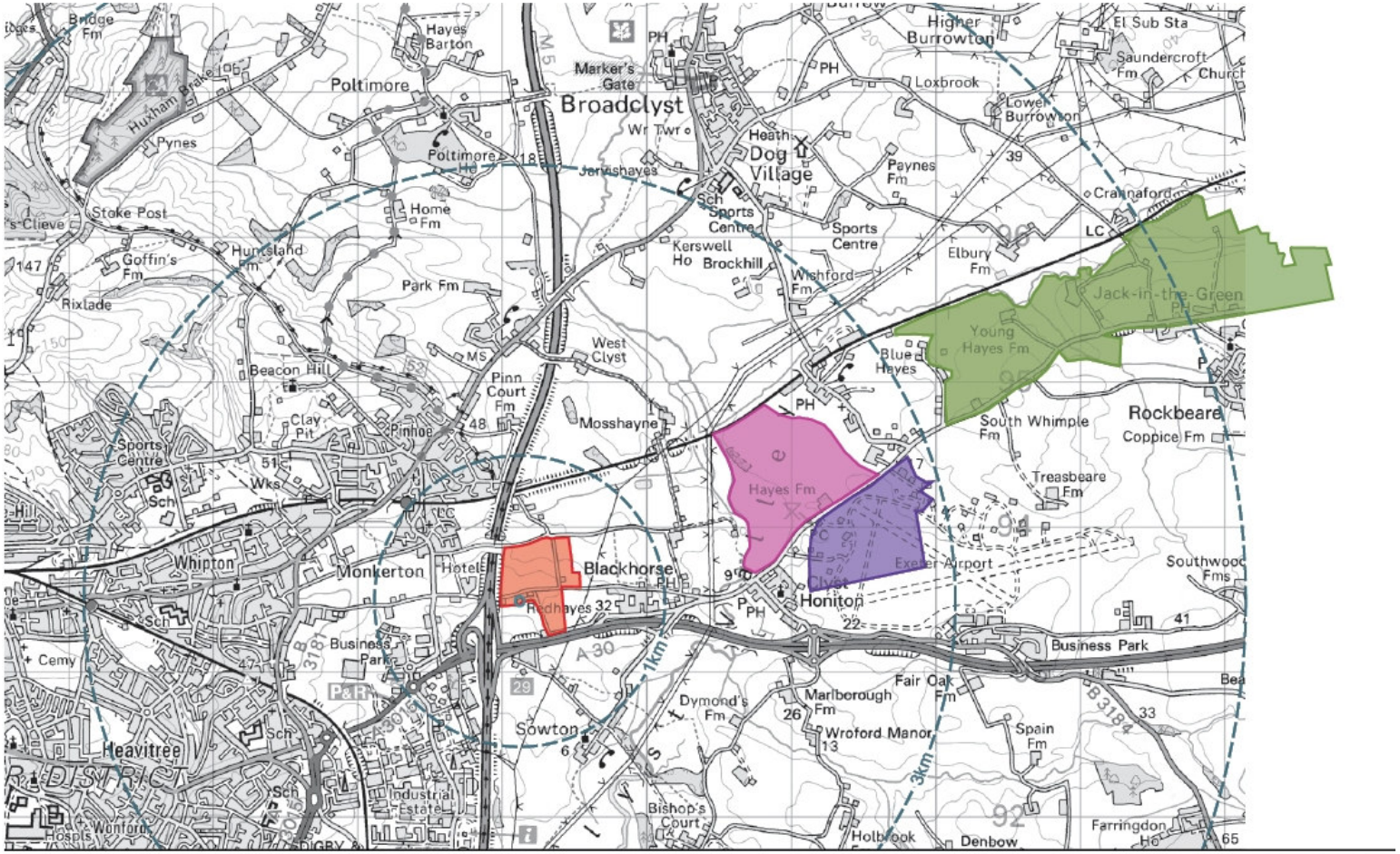
are projected to continue in the period up to 2026 with up to an additional 28,500 jobs forecast, offering the potential to increase the access to, and dispersal of prosperity across a greater cross section of the community.

1.15 60% of people working in Exeter live inside the city boundary while 40% commute from the surrounding areas. Exeter's economy supports over 86,000 jobs and the economy has been diversifying over recent years and continues to do so. It is the focal point of economic activity for much of Devon. Relevant developments include the arrival of the Met Office headquarters and the successful growth of the Innovation Centre at Exeter University.

1.16 Opportunities for growth within the Exeter city boundary are strongly constrained spatially and as a result important elements of housing and employment growth will be accommodated east of the City in East Devon. This has been recognised at national level by the allocation of significant funding to support delivery through the New Growth Point initiative. The vision of East Devon District Council is to realise the full economic potential of Exeter as a major regional centre, providing a range of employment opportunities in conjunction with a self sufficient new urban community.

1.17 The University of Exeter Science Park will lie between the new community at Cranbrook to the east and Exeter city centre, on a public transport corridor that will see substantial investment as part of the Growth Point objectives. It will be an important element in the employment and economic growth required, and a key development in the continuing diversification of the local economy and promotion of high quality job opportunities in the knowledge-based sector. The proposed UESP extent is shown in **Figure 1.1**, coloured orange, in the context of the other main development proposals emerging on the western edge of East Devon District.

Figure 1.1 Proposed Science Park Extent, and Other Emerging Developments



2 Site Context

2.1 This part of the SPD describes the site and its setting, and identifies the main features that influence the way UESP will be developed.

Development context

2.2 The site lies adjacent to, and east of the M5 which runs in cutting at the northern boundary of the site and on embankment at the south. The A30 dual carriageway forms part of the southern boundary, together with an existing access spur from the A30, while the northern site boundary is formed by the unclassified road Tithebarn Lane (which continues west across the M5 on overbridge).

2.3 Within the site area are two further unclassified roads, Langaton Lane which runs north-south through the northern part of the site, and Blackhorse Lane which extends east-west and which is restricted to non-vehicular traffic west of Langaton Lane. The eastern site boundary is formed by an existing field boundary to the north of Blackhorse Lane, which is proposed to be extended southward to the A30 site frontage with a new boundary hedgerow. **Figure 2.1** shows the study area and its context.

2.4 A dwelling, Sunnymead, is situated at the southern end of Langaton Lane, within the site. It is anticipated that this property will be absorbed within UESP development in the longer term, subject to the promoters reaching agreement with the owners, but it can be retained within the site if required, in the medium term. Elsewhere, the nearest built development to the site is the detached house, Redhayes Lodge, on the site frontage, and residential development on Blackhorse Lane about 250m east of the proposed eastern site boundary.

2.5 The proposed boundary of UESP has been defined in this SPD, and encompasses a site area providing the 25ha referred to in the Devon Structure Plan. The site boundary has been defined on the basis of that required area, and on the basis of that part of the original study area considered most appropriate for development in the context of constraints arising from proposed J29 improvement works and parkland character and a desire to keep development to the west of dwellings on Blackhorse Lane.

Landscape and visual context

2.6 The site of Redhayes House lies in the south western part of the site along with former garden areas, parkland and mature specimen trees. The parkland trees and avenue planting are a significant landscape feature but the previous formal gardens and planting to the former house curtilage are now extensively overgrown. Figure 2.2 illustrates the existing landscape characteristics at the site.

Figure 2.1 – Study Area and Context

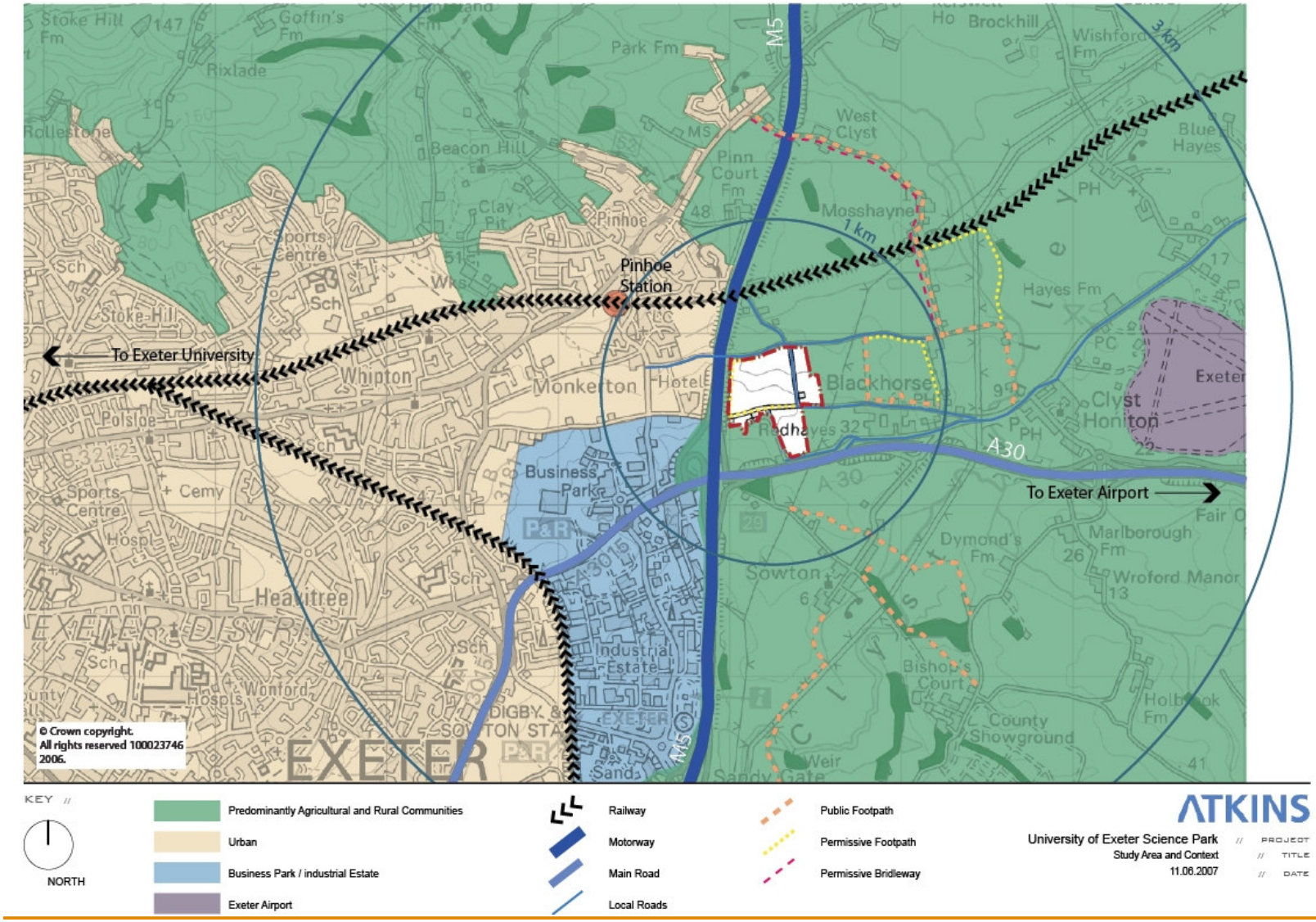


Figure 2.2 Existing Landscape Characteristics

2.7 The south eastern part of the site, east of the old drive, is relatively featureless arable farmland sloping south to the A30. About 50m east (at the nearest points) of the proposed site boundary, a 132kv power line crosses in a south west to north east alignment on pylons. To the north of the gardens and site of Redhayes house, Blackhorse Lane runs along the crest of the ridge.

2.8 Hedgerows and hedgerow trees, together with the mature trees of the old estate, form a strong ridgeline feature. The northern slope of the ridge comprises arable farmland dissected by fences and hedgerows. The landform is gently undulating, falling gradually away to the east, towards the Clyst valley. Here, the landscape character is distinctly different to that south of the ridgeline, where roads and built development become dominant characteristics, in the vicinity of Blackhorse Village and the A30.

2.9 From the crest of the ridge there are expansive views to the south and south west, across the M5 and Exeter Business Park to the hills south west of Exeter, and south east to the distant raised ground of East Devon. There are expansive views to the south west, with the Sowton Industrial Estate and Exeter Business Park occupying the middle distance. Views directly west are constrained by trees within the site and in the motorway cutting.

2.10 Looking north from the ridge, the community of Pinhoe is visible. Directly north of the site are small clusters of cottages at Mosshayne and West Clyst, and in the further distance, towards the settlement of Broadclyst, where the land begins to rise to the Ashclyst Forest.

2.11 To the east, glimpses of aircraft at Exeter airport are interspersed with views of the lower lying fields. Light aircraft and commercial jet traffic overflying the study area and surrounding area as they land/take off from Exeter Airport are a significant visual (and noise) feature. About 200m to the east of proposed site boundary, the edge of the community of Blackhorse is prominent.

2.12 Views into the site will inform the approach to development of UESP. The mature Firs and Pines along the ridge create a prominent visual landmark in views from the north and south and, to a lesser extent, the east. From the north they form a backdrop to the arable landscape; whilst from the south they are seen within the context of the parkland and parkland trees which, in more proximate views, screen land to the east. The view from the south is one of a locally distinctive parkland character set against the ridge top trees which form a visual marker to traffic on the M5 travelling north.

2.13 From the north, the site is visible in distant views from Broadclyst. In middle distance views it is visible from Pinhoe, from the M5 and from the old A30. There are close views from the M5, for motorists travelling southbound, and limited views from Tithebarn Lane, most particularly from the M5 overbridge.

2.14 South and east of the ridgeline, there are long distance views from Woodbury and from West Hill. Medium distance views are possible from the M5, new A30 and the southern edge of Exeter, while the lower ridge line to the south of the A30, restricts views of the site from the lower lying areas to the south. There are nearer views from the east, from Blackhorse, although the form of built development, established vegetation and topography constrain these. From the west there are near views from the M5, for motorists travelling northbound, from the industrial estate and business park. From immediately to the west topography and existing vegetation considerably limit views into the site.

2.15 There are a range of views for pedestrians and cyclists using the public rights of way near to the site, and for motorists using Blackhorse Lane and the north-south Langaton Lane.

2.16 As noted above, there are an unusual set of visual receptors in the form of passengers on flights into and out of Exeter Airport for whom there would be changes in views of the site if development

took place. This presents a marketing opportunity for the Science Park.

2.17 The extensive new planting associated with the M5, with Junction 29 and more recently with the A30 is slowly maturing and will, over time, reduce visibility of the site, changing the visual character to a more secluded setting. Additional planting is likely to take place as part of proposed improvements to Junction 29 within the parkland area and along the site frontage to the A30.

Biodiversity and Cultural Heritage Setting

2.18 In addition to the landscape and visual analyses, an ecological Phase 1 Habitat Survey and an archaeological desk study also been undertaken.

2.19 The habitats at the study area are dominated by intensively farmed agricultural land, and semi-improved grassland with an area of parkland to the south west associated with the former Redhayes house. This parkland is now a century old and is in decline and some losses and replacements are evident.

2.20 The individual trees within the parkland in the southwest quadrant and the groups of trees making up the estate drive and to the former gardens are protected by Tree Preservation Order No. 1 1998 made by East Devon District Council. It is clear from site study that the plan associated with the TPO Order is now in need of updating to more accurately reflect the current situation. A diversity of species is present with mature pines being particularly noticeable in the landscape. These trees, and other hedgerow trees at the site should be retained within UESP.

2.21 Grass verges, broad-leaved woodland and semi-improved grassland form part of the Exeter Biodiversity Network and Exeter Key Network Features and examples of these features occur within the site area. The Exeter Biodiversity Network is comprised of statutory and non-statutory sites, together with countryside features which provide wildlife corridors, links or stepping stones from one habitat to another, help to form a network essential for migration, dispersal and genetic exchange and therefore necessary to maintain biodiversity. These characteristics do not constrain development opportunity at the site, but do form the basis of potential to enhance the biodiversity value and interest at Redhayes.

2.22 A badger survey undertaken during 2005 revealed three locations within the site supporting active badger setts. There is evidence of badger activity along the eastern boundary of the study area.

2.23 Four species of bat were recorded foraging along tree and hedgerow corridors within the study area in surveys undertaken during 2005. These were common pipistrelle, soprano pipistrelle, long-eared bat and natterer's bat. It is considered likely that most of the bats recorded will be roosting on the study area in one or more of the mature trees present. The majority of trees with high potential to contain bat roosts are located along the former access drive to Redhayes, although other trees occur in the parkland area to the south-west, and in the fields to the north and east.

2.24 A reptile survey was also undertaken during 2005 and this identified the presence of common lizard in the parkland area nearest to the former site of Redhayes house, and slowworm in the former garden area immediately west of the house site.

2.25 From an archaeological perspective there are a number of features potentially of interest at the site, but it is not currently anticipated that they will influence the form of development. The two main areas of potential are the alignment of the Roman road on the southern site boundary associated with the modern A30, and possible ring ditches in the area east of the Redhayes driveway. Further investigation will be required during as part of an EIA when a planning application is submitted.

Planning Policy Context

2.26 Objectives of the adopted East Devon Local Plan which will need to be taken account of in developing the Science Park are:

- To support communities by creating new development close to facilities with good access to public transport and by other transport modes.
- To maintain a clean and safe environment and improve public amenity.
- To seek provision of adequate infrastructure to meet existing needs and keep pace with the requirements of new development.
- To maintain and increase biodiversity.
- To reduce the need to travel and maximise the potential of modes of transport (in particular non-fossil fuel powered vehicles) other than the private car.
- To promote good design in development that respects and enhances local character and distinctiveness.
- To create a stronger and more diverse local economy and contribute to the development of the regional economy, to be capable of generating self-sustaining growth and which offers secure and good quality employment to local people taking account of planning and environmental considerations.

2.27 Policies of the Local Plan that need to be taken account of in planning for development at the site include:

- Policy D1 – Design and Local Distinctiveness;
- Policy D2 – Sustainable Construction;
- Policy D4 – Landscape Requirements;
- Policy D5 – Trees on Development Sites;
- Policy D6 – Public Art;
- Policy EN6 Wildlife Habitats and Features;
- Policy EN21 – Surface Water Implications of New Development;
- Policy S7 – Infrastructure Related to New Development.

2.28 The Local Plan should be referred to for the detail of these policies. The site lies within a Nitrate Vulnerable Zone associated with the River Clyst valley but is not covered by other environmental designations.

3 Development Rationale

Introduction

3.1 UESP is conceived as being an exemplar sustainable development. It presents the opportunity to showcase low and zero carbon development technologies in the masterplanning and building design of the scheme, which offer strong potential for linkages with the areas of research and business development that will take place at UESP.

3.2 East Devon District Council is committed to developing a Low and Zero Carbon Strategy for the developments East of Exeter, and this will apply to UESP. Importantly, the strategy will identify not only requirements for individual developments, but also opportunities for complementary initiatives that can collectively achieve low or zero carbon development.

3.3 The strategy is under preparation, and it will be a requirement for UESP that masterplanning and detailed design accords with the strategy when adopted, which is expected be before the first phase planning application is prepared.

3.4 The emerging Regional Spatial Strategy for the South West will also require larger new development to meet low or neutral carbon emission standards. Policy G of the draft RSS requires this, and requires a BREEAM rating of Very Good or better for new development. The RSS will form part of the Development Plan within which UESP will be delivered, and the development will need to meet RSS policy requirements.

Sustainable Design and Operation

3.5 UESP must achieve high standards of sustainable performance for construction, operation and, in the long term, for redevelopment and re-use of the site. The Masterplan for UESP that will be prepared as a precursor to planning applications will present the detail of proposals to achieve this high performance, but the SPD here identifies the areas that must be addressed. A set of key development briefing considerations for the Masterplan is presented in summary at the end of the section.

3.6 As a minimum commitment it is proposed that all buildings at UESP will meet the BREEAM Excellent standard or an equivalent standard of the emerging Code for Non-Domestic Sustainable Buildings. Together with other sustainability targets this needs to be reviewed at the end of each development phase.

Construction

3.7 During construction a Construction Environmental Management Plan (CEMP) will be required which will set out the standards that will be adhered to during construction, and how particular issues such as protecting rights of way and retained trees and hedgerows and pollution prevention will be dealt with.

3.8 Requirements for the scheme that will be addressed during construction phases include a net balance of materials associated with earthmoving and ground modelling. That is, no materials should be imported or exported from the site in order to achieve cut and fill that may be needed for building platforms, access routes etc. It is recognised that some engineering fill to meet technical standards may need to be imported

3.9 The site is partly underlain by the Dawlish Sandstone Formation, which provides a local source of building sand in the Exeter area at Bishops Court Quarry. There is potential for prior extraction of sand from the site in order to provide for the construction needs of the development in a sustainable manner and this should be evaluated as an integral part of construction proposals. Such extraction may also have positive implications for the ground modelling of the site.

3.10 The overall approach to the selection of construction methods and

materials, where these are not implicit in the design/operation of the buildings themselves, should be to seek to use recycled products (for example crushed demolition waste for engineering fill) where these are appropriate and remain the most sustainable option (e.g. they do not need to be transported long distances) and/or materials which are from a sustainable source and have low embodied energy. Extensive use of concrete, for example, should be avoided where practicable due to the high energy consumption involved in its manufacture. Materials should be locally sourced wherever possible, where this is the most sustainable option.

3.11 Construction waste arising from the development should be sorted on or off-site for materials that can be re-used or recycled, and only residual wastes that cannot be beneficially used should be disposed of.

Transport

3.12 A central principle in the sustainable development of UESP is the need to reduce dependence on the private car for employees to travel to, from and within the site. This is essential in order to reduce future congestion, and to minimise adverse air quality effects The primary means of achieving this will be through convenient and easy to use public transport links combined with encouragement of alternative means of transport such as walking and cycling.

3.13 In determining the strategy and proposals for access and parking it will be necessary to develop a Work Place Travel Plan which will establish the required modal split for work travel journeys, confirm the public transport proposals for the development (infrastructure provision and measures such as assistance with travelcard purchase), and determine vehicle trip rates and parking capacity needs.

3.14 The Travel Plan will need to form part of the planning submission, will inform the EIA, and relevant parts will be tied into any planning permission through planning condition and/or s106, particularly with reference to enforceable limits on trip rates and parking capacity.

3.15 The Travel Plan must be prepared in the context of travel proposals for other development East of Exeter, and must be coordinated with the strategic transport proposals and travel plans of these nearby developments where necessary. It is proposed that a Travel Coordination Officer is appointed for the East of Exeter development area and full consultation with this representative will be necessary.

3.16 The nearest railway station is Pinhoe railway station at approximately 1km from the development site and therefore within cycling distance. This station is on the main Exeter-Waterloo railway with convenient links to Exeter town centre, and in due course there will also be a new station at the Cranbrook new community and it will be important that cycling linkages between UESP and Cranbrook are promoted in the development and management approach at UESP. Marketing of UESP and signage within the site should highlight opportunities to cycle to/from these stations.

3.17 Improved bus services (every 8 /10 minutes at peak times) linking the East of Exeter developments with the town centre of Exeter will be established in response to growth of the New Community new development east of Exeter. The Phase 1 Access Strategy for the East of Exeter area proposes high quality and frequent bus services connecting the area either directly or indirectly to residential and employment areas in Exeter. In this context the Strategy considers that the old A30 road has the potential for a high frequency bus route as part of the High Quality Public Transport link (HQPT). This would take services past the frontage of the Phase 1 UESP development, travelling both east-bound and, following implementation of the Phase 2 Access Strategy west-bound services would also pass the site frontage.

3.18 These services will need to be linked to UESP from the day of opening of the first phase of its development and thereafter increased in level as phased growth of UESP takes place. It is anticipated that it would be attractive to bus service operators to take a route into UESP once a critical mass of development was established beyond Phase 1 of growth, but that an A30 frontage bus stop would be adequate in the interim.

3.19 If it appears that the market may not deliver a bus service to the site from day of opening then a developer contribution will be required to secure this. This is discussed further at Section 5. Once M5 J29 improvements are in place under the Phase 2 Access Strategy a bus route through the site to/from the Blackhorse junction and J29 would become more attractive.

3.20 In the longer term there is the potential for the HQPT to run through the heart of UESP and on into central Exeter across the M5 overbridge to the north. This is likely to form part of the overall public transport strategy for development east of Exeter. It is essential that masterplanning and phased implementation of UESP retains provision for that requirement.

3.21 Ongoing travel surveys repeated at regular intervals will be required to monitor employee travel patterns and requirements. These travel surveys should also be used to develop a UESP-specific car-share scheme and to link with the established successful Devon County Council car share scheme for participation of all businesses within the park.

3.22 The objective as UESP grows will be to place bus stops which are conveniently located and within easy walking distance of the main buildings and public amenities at the site. This will be easier in the first phase of development, with an A30 frontage bus stop, but will become more challenging as UESP expands and is likely to require implementation of the bus route through the site and across the M5 north of the site. The number of stops within UESP will need to be carefully planned in order to avoid reducing the overall attractiveness and viability of the through service between Cranbrook and/or other locations further east, and Exeter centre.

3.23 Alternative means of commuting, in particular by foot or cycling will be encouraged and must be provided for. Within UESP, segregated footpaths / cycleways should be set out as the primary means of internal circulation with links offsite additional to those provided for vehicular users, namely to the north and via Tithebarn Lane bridge across the M5 linking to the communities of Monkerton and Pinhoe as well as Pinhoe railway station.

3.24 Accessibility will be a key design consideration and the requirements of the Disability Discrimination Act (DDA) will be regarded as a minimum standard. Access within the site in terms of routing and the design of pathways including gradients, surfacing and legibility should place the needs of disabled people at the centre of the planning design process.

Development Design

3.25 The highest quality in environmental and aesthetic design will be sought for all buildings. Building design should reflect the principles of sustainable development in addition to responding to the innovative and science-based activities that will characterise UESP, and to the landscape and topographic context at the site.

3.26 The location of the Science Park represents an effective gateway to much of Devon and Cornwall, and to Exeter when travelling from the north and east. There is the potential to provide an iconic building or structure as part of UESP to signify this gateway and to create a landmark or identifiable feature by which UESP, and its gateway position, can be recognised.

3.27 Development design should not exclude the use of vernacular materials where these can be employed. Examples may include opportunities for renewable materials such as timber and rammed earth as well as other products such as perforated clay bricks, straw bale and industrial hemp alongside more modern materials.

3.28 The general principle for building design should be that they are low maintenance, flexible and adaptable in use, energy and water efficient, and IT enabled for the needs of 21st Century cutting edge uses.

3.29 Flexibility will be a key requirement because of the potentially varied needs of tenants on the basis of types and maturity of business activity. Similarly, early phase buildings in particular may need to fulfil different roles as they change from being the only buildings on site, at the entrance and core area, to being more peripheral within the site.

3.30 A wide range of building size and style can be developed, but it will be important to establish a coherent design strategy as part of the Masterplan for the site. This will need to be sufficiently flexible to accommodate a range of unit sizes, while at the same time ensuring high standards of architectural and landscape design.

3.31 Proposed development will be the subject of consultation with Exeter Airport in terms of height, materials, lighting and telecommunications in the context of potential effects on the operation of the airport and air traffic. Initial indications are that a maximum building height limit of 64m (210 feet) above ordnance datum (AOD) will apply. However, this limit is unlikely to be relevant since the highest part of the site, the site of Redhayes House, is at 45m AOD and a 19m high building at this location, which equates to five storeys, is unlikely to be acceptable in any event.

3.32 The siting and layout of buildings should be such that it optimises potential for non-mechanical heating and cooling, for example through passive and active management of solar gain, and orientation to prevailing winds. The Masterplan will determine the final pattern of proposed development. In responding to the existing landscape and biodiversity resources at the site, an approach using clusters of buildings at key points would allow a balance between creating vibrant spaces between buildings and maintaining larger areas between clusters.

3.33 The design principles for buildings should reflect the energy hierarchy which is reduce energy consumption,, then increase energy efficiency, and then meet remaining demand from zero carbon or renewable sources.

3.34 The use of sustainable energy sources such as ground source heat pump technology and microgeneration techniques including photovoltaics, solar thermal, waste wood pellet and biomass fuelled heating will be strongly encouraged to replace or reduce the need for traditional gas and electrical supply. The use of innovative or emerging technologies could be piloted in buildings at the site and has the potential to form part of research based activity at UESP.

3.35 The design of buildings for both construction and use should seek to minimise waste as a basic principle. UESP will also provide infrastructure that optimises waste recycling and re-use and will need to include provision for waste facilities that allow on-site waste separation prior to collection and transfer. The approach to waste management during the operational phase of UESP should be enshrined in a site Waste Management Plan.

Landscape Influences

3.36 Figure 3.1 shows the site analysis and the influences on the approach to development. Figures 3.2 and 3.3 identify the site constraints and opportunities respectively, identified from the analysis.

3.37 The Redhayes site frontage is part of the former grounds of the now demolished Redhayes House. These comprise parkland of pasture and mature specimen trees to the southern slope of the ridgeline. The parkland trees and avenue planting are a significant landscape feature although the parkland is not under active management, apart from grazing and the previous formal gardens and landscape to the house curtilage are now extensively overgrown.

3.38 This is an aging landscape, and one which will lose a significant area on the A30 frontage as a result of works to improve M5 junction 29. Due to this expected reduction in extent of the parkland area this part of the overall study area has been excluded from the area identified for receiving science park development, and is excluded from the main 25ha development site. It will, however, form an important element of the development to the extent that road access from the proposed junction will pass through this parkland area to enter UESP.

3.39 It is possible that in the future the parkland area could be reconsidered for sensitive development, when the extent of junction works on the frontage has been confirmed together with the alignment of the access into the UESP itself. At present, however, the SPD approach is to retain the parkland area free of buildings in order to enhance the frontage setting of the UESP and retain a meaningful area of the parkland landscape.

3.40 It follows, therefore, that the integrity and value of this landscape should also be enhanced by bringing it under management with new parkland tree planting to reinforce existing features, to compensate for anticipated future losses due to age and condition of the existing trees, to compensate for losses resulting from land take due to J29 works and finally, to create an enhanced setting in the foreground of UESP.

3.41 The maintained parkland area should include the existing Lime avenue to the drive and former Redhayes gardens. It will be required that the developer/operator of UESP takes on the management of the parkland area as part of the overall landscape management approach at UESP.

3.42 Redhayes House was demolished following a fire in the 1980s. The house was a prominent structure in the local landscape and UESP development provides the opportunity for a sensitively designed new landmark building at the former house site. Although stakeholder consultation has indicated that respondents would prefer that the ridge area remains undeveloped, the Local Planning Authority believes that the Redhayes House site may continue to offer the opportunity for a building as part of UESP, with appropriate design safeguards in place.

3.43 This is a sensitive part of the site, and any proposals for the Redhayes House site, or other locations on the ridgeline within the site would need to be supported by a detailed evaluation of the landscape and visual merits of a building there, including in the context of both the wider landscape and local environment. It is considered, however, that sensitive development, for example in the form of smaller buildings and courts within trees could be accommodated within the wooded ridge area around the former Redhayes House site.

3.44 Any buildings at that location must maintain the highest design quality standards for the development in terms of sustainability, design integrity and material selection. The design of the building and associated landscaping should tie in with and complement the parkland landscape setting and the elevated location.

3.45 The existing dense belt of trees and hedgebanks to the west should be retained, brought under management and enhanced to complement the remaining parkland features of the former Redhayes House grounds. The existing hedgebanks and hedgerow trees to Blackhorse Lane on the eastern section of the ridgeline should be retained and enhanced.

3.46 Opportunities to use the ridgeline as a multifunctional green infrastructure resource need to be considered as part of the masterplan approach and in considering the relationship of UESP with its wider setting. This area has the potential to provide a green infrastructure link between the developments to the east of Exeter across the M5 and into the city of Exeter.

Phasing and Siting of Development

3.47 Figure 3.4 indicates the proposed direction for phasing of development at UESP. The first phase of development is anticipated as commencing with the Science Park Centre, being one or perhaps two buildings offering around 3,000m2 of floorspace, together with ancillary buildings that may be required to support Phase 1. The Science Park Centre building will accommodate management, administrative and marketing space for UESP itself, and will provide the essential early phase letting space suitable for multi occupancy.

3.48 This phase will establish and advertise the presence of the Science Park and will be sited in an enhanced landscape in the south-eastern portion of the site, to the east of the existing Redhayes drive and avenue. Here they will be visible from the A30 frontage and located conveniently for the first phase access which will be derived from the existing A30 slip road junction at Blackhorse. This location will permit the access and other service infrastructure to be installed without needing to penetrate far into the site.

Figure 3.1 Landscape Analysis – Key Views and Vegetation

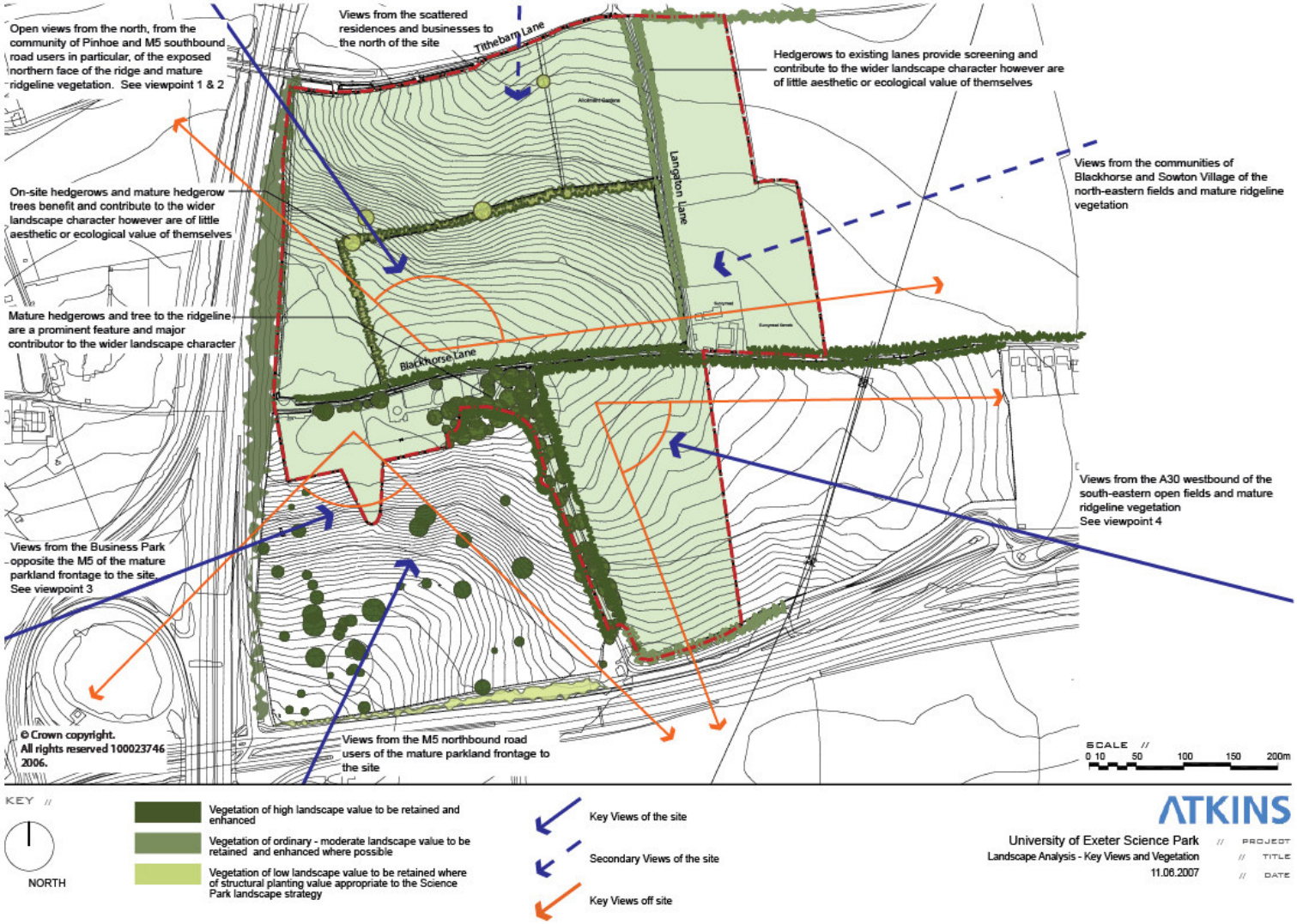
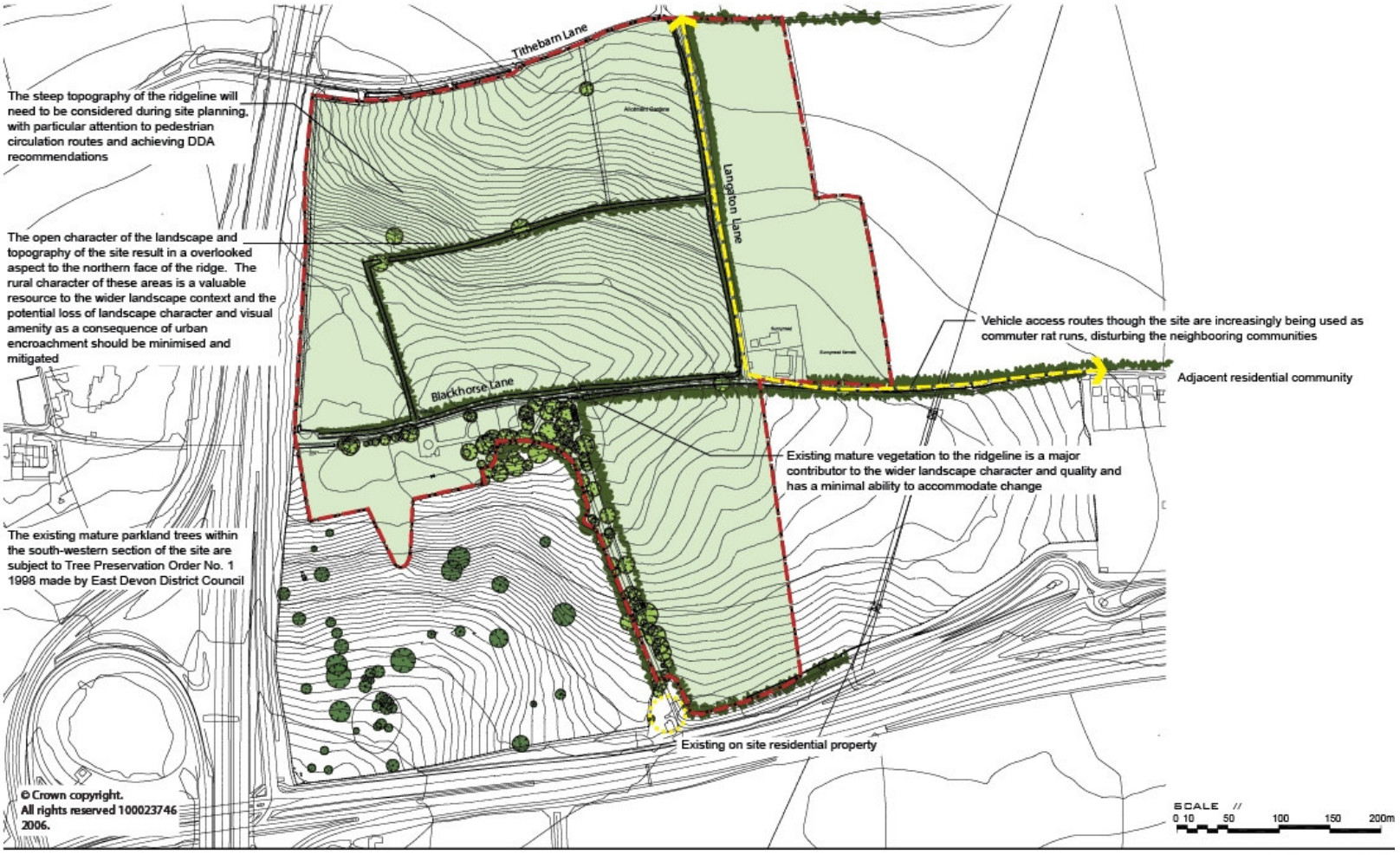


Figure 3.2 Site Constraints



3.49 The Science Park Centre will be developed during the initial stage to create an early presence and frontage to UESP, which will be followed by further growth during Phase 1 to deliver up to 12,000m2, depending on demand, by about 2012. Phase 2 of UESP would follow the access improvements that include the works to M5 J29, that will enable delivery of a further 14,000m2 gross floor area. It is anticipated that this would progress through the site in a northern and north western direction, responding to demand up to about 2016.

3.50 This development pattern may need to allow for a moving focus to UESP whereby the first phase of development can be re-used for letting space as the focus moves further into the site and the Science Park Centre is relocated in one or more stages in order to remain at the heart of the final development pattern.

3.51 The landscape setting of the northern and south-eastern areas of the development site is arable agricultural fields defined by hedgerows, hedgerow trees and narrow lanes. The hedgerows are generally poor quality and weak away from the lanes. The ridgeline topography of the site results in overlooked aspects to the north and south. The rural character of these areas is a valuable resource to the wider landscape context and the potential loss of landscape character and visual amenity as a consequence of built form encroachment will need to be minimised and mitigated.

3.52 This phase will establish and advertise the presence of the Science Park and will be sited in an enhanced landscape in the south-eastern portion of the site, to the east of the existing Redhayes drive and avenue. Here they will be visible from the A30 frontage and located conveniently for the first phase access which will be derived from the existing A30 slip road junction at Blackhorse. This location will permit the access and other service infrastructure to be installed without needing to penetrate far into the site.

3.53 These buildings will be developed during the initial phases to create an early presence and frontage to UESP. Development in the northern and north western portions of the site will be brought forward during later phases, responding to demand, and will be able to mark the presence of UESP to southbound traffic along the M5.

3.54 Development is planned to start in the south-east of the site with expansion following in a northerly and north westerly direction. It is envisaged that this development pattern will need to allow for a moving focus to UESP whereby the first phase of development can be re-used for letting space as the focus moves further into the site and the Science Park Centre is relocated in one or more stages in order to remain at the heart of the final development pattern. This arrangement is not key to the development pattern and will respond to demand at the time, however.

Figure 3.3 Site Opportunities

Figure 3.4 Possible Direction of Phased Growth

3.55 The landscape setting of the northern and south-eastern areas of the development site is arable agricultural fields defined by hedgerows, hedgerow trees and narrow lanes. The hedgerows are generally poor quality and weak away from the lanes. The ridgeline topography of the site results in overlooked aspects to the north and south. The rural character of these areas is a valuable resource to the wider landscape context and the potential loss of landscape character and visual amenity as a consequence of built form encroachment will need to be minimised and mitigated.

3.56 Existing vegetation other than the structural and skyline planting should be assessed for their biodiversity value and visual amenity and retained if determined to be of significant landscape value. The overall approach is that the existing structural landscape formed primarily by areas of mature trees of the northern and south-eastern areas should be retained and enhanced where appropriate, together with features of significant biodiversity value. UESP development should be designed to fit within the existing structure where possible and the framework enhanced by new structural landscape planting and habitat creation.

3.57 Advance structure planting of hedgerows and tree belts should be undertaken within the site to enhance the overall site landscape structure and biodiversity and to provide contour screening of potentially incongruous UESP features such as new access infrastructure and car parks in advance of phased growth on the site. This will be particularly important where existing landscape structure or valuable habitat will be lost.

3.58 Amenity planting within the Science Park should comprise specimen tree and minimal shrub planting to reinforce the parkland and agricultural setting. Wildlife corridors to the site boundaries, especially along the M5 cutting to the west and along the north and eastern boundaries should be established in keeping with the wider landscape setting of hedgerows and tree belts and to links/stepping stones for species moving through the landscape.

3.59 The detailed landscape treatment of the site should respond to the varying building densities and functional requirements across the site. The proposals should provide for both high quality hard and soft areas, both formal and informal for the users of the site as well as to enhance the settings of the buildings, tying them in with the landscape strategy of the Science Park, and wider landscape character area.

3.60 Provision for wildlife enhancement should be included through the use of locally typical native plant species selected for their biodiversity value for habitat and food sources within designated areas designed to have minimal disturbance from the functions of UESP.

Circulation and Access

3.61 Amenities for the use of employees as well as visitors, accompanied by shared open space, should be provided in order to create a healthy and enjoyable working environment as well as reduce the need for trips out of the site to run personal or business related errands.

3.62 The range of amenities will need to respond to the scale of development at different stages of growth, and to demand from occupiers of UESP. These are anticipated to include a café/canteen/sandwich shop; crèche; cash machine and gym facility.

3.63 Primary vehicular access to the site will be from the A30 to the south, although it is anticipated that in the longer term a High Quality Public Transport access will be provided from the north, connecting to the M5 overbridge and passing through UESP to the A30 frontage. Provision for this must be made in the strategic masterplan for the site.

3.64 The first phase of development, of up to 12,000m^2 gross floor area will be accessed from the existing slip road into Blackhorse, with appropriate improvements (see Section 5: Infrastructure). Following implementation of the M5 J29 improvement under the East of Exeter Phase 2 Access Strategy the primary point of access will be from an arm of that junction allowing UESP Phase 2 growth of up to a further 14,000m^2. The Blackhorse slip road access may remain in use for some vehicular access, public transport access and to provide a secondary point of access for emergency purposes.

3.65 Road infrastructure within UESP should be kept to a minimum in order to meet the requirements of emergency and maintenance access services, with a simple and easily negotiable layout. Road design should deter parking in non authorised locations and should incorporate non-traditional traffic calming measures. Design should also take account of the principles presented in the Department for Transport Manual for Streets in terms of connectivity, permeability, legibility, reduced signage and street clutter.

3.66 Traffic calming measures should include narrow carriageways, limited visibility splays and a clearly defined hierarchy of road surfaces to demarcate vehicular and pedestrian priorities. Where pedestrian routes intersect with vehicular ones, the pedestrian routes should be given priority, utilising raised crossings and alternative road surface materials.

3.67 The existing network of lanes within the site is unsuited to the requirements of UESP. As such, and to avoid the use of these routes as a rat run for commuters, it is anticipated that Blackhorse Lane and the southern section of Langaton Lane may be closed to private vehicles at a date beyond the first Phase of UESP development, or earlier if consultation with local residents and other stakeholders including the Highways Agency indicates that this would be appropriate. Closure is anticipated to be at a point just west of the existing housing on Blackhorse Lane, with provision retained for vehicular access to Sunnymead only.

3.68 Blackhorse Lane and Langaton Lane will be retained as part of the landscape strategy for UESP, for the use of pedestrians, cyclists and horse riders where necessary. Closure will be contingent on providing access for agricultural vehicles to fields in the vicinity that may currently rely on these lanes.

3.69 Access to Pinhoe for the residents of Blackhorse and Sowton Village will still be available via Mosshayne Lane, Tithebarn Lane and the northern section of Langaton Lane and as facilities are developed at Cranbrook to the east, demand for trips to Pinhoe from the Blackhorse and Clyst Honiton areas is likely to reduce. This network of routes is also narrow and not suitable for significant levels of traffic and therefore it may be preferable that some of the named lanes cease to be used as through routes for private cars in due course.

3.70 Closure of any of the lanes to vehicles will need to be considered as part of a wider transportation assessment and strategy. Stakeholder consultation will need to be undertaken in advance of any proposals being taken forward and any objections to a closure would require to be considered by the County Council's East Devon Highways and Traffic Orders Committee.

Public Access

3.71 The open spaces of UESP will be a resource, not only as the setting for buildings and for use by workers at the site, but also as an informal open space resource for the local communities. Thus footpath and cycle linkages will be used both by those travelling to work, and by recreational users, and the approach to the design and management of the open spaces will need to cater for this diversity of users.

Parking

3.72 The parking layout for the Science Park will be informed by the overarching Work Place Travel Plan which will in turn reflect local and national transport policy. A key design principle for the development is to substantially reduce dependence on the private car for commuting, both to minimise congestion in principle and to reduce adverse air quality effects in the Exeter area. This aspiration must be reflected in a clear car parking strategy that is linked to an ambitious modal split target excellent public transport services from the commencement of development, attractive pedestrian/cycle routes and cycle parking for all buildings. The provision and layout of on site vehicle parking should provide for the minimum number of spaces required.

3.73 Secure and convenient cycle parking must be provided for the use of users of UESP. Cycle parking should be located within or adjacent to buildings with fully secure cycle lock-up facilities in overlooked locations for security and user safety. Adequate lighting and shelters should be provided to all cycle parking areas to encourage year round commuting by cycle.

3.74 On-site employee car parks should to be located to the rear of buildings or appropriately screened from building approaches and views within and from without the site. Where possible, car parks should be communal, shared between two or more of the buildings. These communal car parks should be located at a reasonable distance from buildings and footpath access from car park to building should take into consideration accessibility issues, as well as provide adequate lighting and security to ensure user safety. All car parks and access to and from them should be address Secure By Design recommendations.

3.75 Visitor car parks and disabled parking, where provided separately from the communal employee car parks and taxis drop offs to individual buildings, should be appropriately landscaped and surfaced in keeping with the overall UESP design guidance.

Materials + Site Furniture

3.76 UESP will be a high quality environment that is attractive to market leading and innovative knowledge based technologies and businesses. It is therefore essential that quality standards are established with regard to design and materials to ensure that all development elements attain the high quality aspired for and are realised in a style complementary to the overall Science Park.

3.77 A key design principle in selecting materials and site furniture should be sustainability, covering a range of important aspects. Materials should be locally sourced where this is a sustainable option, contributing to the local economy and minimising the adverse impacts associated with transporting materials to site.

3.78 Sustainable materials should be used which are of a high quality and are durable, ensuring a long lifespan requiring minimal maintenance with consideration given to effects of time and use on aesthetic quality. Sustainable materials should incorporate the best sustainable technologies and processes from the manufacturing process to their operational functions, such as permeable paving and solar powered lighting.

3.79 The palette of materials chosen should encompass the entire space, rather than being considered as a series of separate elements. The aim should be to create a clear arrangement, using a limited and complementary range of materials, so minimising visual clutter. Traditional, natural materials that harmonise with the local vernacular should be used where possible, and laid out in a simple and traditional manner that relates to the scale of the space. Artificially coloured materials should be avoided as they can fade over time and compromise the original design intent.

3.80 A hierarchy of materials should be implemented based upon the function of spaces and associated material quality standard set out below. Changes in paving material, colour or texture should have a distinct purpose, for example to denote car parking spaces or to define a key pedestrian route. The following is a guide to the hierarchy of spaces.

Formal Hard Landscapes

3.81 High quality sustainable design should be the theme for all works. The approach to design will be a matter for the masterplan process and individual planning submissions to address. A palette of materials should be selected to ensure that individual developments achieve a level of coordination within the overall UESP design strategy. This will be defined as part of the Masterplan Strategy for the site.

3.82 Complicated pattern formation and excessive contrast between materials should be avoided as these confuse users of the space and lead to maintenance problems. Consideration should be given to the effects of wear and tear on materials, particularly where they will be required to withstand long term vehicular use.

3.83 Pedestrian approaches to buildings and formal breakout spaces should be surfaced with high quality paving slabs and setts, utilising a select range of pavior sizes to define access routes from breakout spaces. A select range of paving colour, finish and pattern will be defined for use across the entire UESP selected to complement the natural character of the area.

3.84 Visitor and disabled parking located to the fronts of buildings should be surfaced in high quality concrete setts, in a style and pattern in keeping with the pedestrian approaches, of a differing colour and pattern alignment to define the vehicular from pedestrian spaces. permeable paving materials should be utilised to minimize the environmental impact of the areas of hardsurfacing, in line with the SUDS (sustainable urban drainage systems) strategy for the site as a whole.

Informal Hard Landscapes

3.85 Pedestrian footpaths, cycleways and informal break out spaces within UESP should be surfaced with a consistent finish throughout the site – with a different finish for these different uses if necessary. Where it is necessary to accommodate vehicle access for maintenance or emergency service purposes surfaces should be upgraded to a vehicle grade construction. Paving edges should be defined in a similarly consistent way.

3.86 Vehicle surfaces not expected to be subject to high stress traffic or activities, such as employee car parks, should be surfaced in keeping with the pedestrian footpaths throughout the site. Expansive area of hard surfacing should be broken up with the introduction of specimen trees.

3.87 High stress vehicle areas, such as delivery or emergency vehicle turning areas should be surfaced using a SUDS paving system accompanied by oil/silt traps as necessary.

3.88 Roadways should be consistently surfaced to clearly define vehicle routes and minimise maintenance requirements.

Site Furniture

3.89 A common design style for site furniture will help to create a sense of place and set the design and material quality for UESP, as well as reduce visual clutter.

3.90 The suite of formal furniture should be specified for building approaches and formal breakout spaces as well as for street furniture. The selected suite of furniture should be of high quality design and material with high durability and minimal maintenance requirements and be aesthetically in keeping with the UESP science and technology drivers.

3.91 The suite of furniture may include both benches allowing double sided seating and backed seats to be located at key areas of pedestrian congregation as well as at suitable intervals set back off the footpaths. Mobility issues should be a consideration in the selection of seating and rising aids provided. Litter bins should be provided for the convenience of park users, provided at regular intervals along footpaths and at key activity areas.

Signage

3.92 A standard Science Park hierarchy of signage should be set out, including corporate signage, directional signage and roadway signage. Corporate signage for individual buildings and businesses should allow for the incorporation of corporate logos, however be of a standard style, material and colour pallet. Interchangeable signage should be selected to minimise maintenance requirements and allow for changing business users.

3.93 Directional signage should be provided for both pedestrian and vehicular users. Pedestrian signage should include fingerposts and interpretive signage located at key nodes and route options. Vehicular directional signage and road signage should be kept minimal to limit road clutter and reduce vehicle speeds. Signage should be selected from the same signage family with clear differentiation between pedestrian and vehicular signage.

3.94 Public art can be integrated with signage in order to improve legibility and navigation within the site.

Lighting

3.95 The primary focus of lighting should be for the amenity, comfort and safety of pedestrians within the site. A hierarchy of lighting from waylighting to minor footpaths to amenity lighting of breakout spaces and comfort lighting to waiting points such as bus stops as well as appropriate building accent lighting, roadway and car park lighting should be set out, with the selection of lighting units to complement the site furniture selection. The ambience of UESP at night will be largely dependent on the quality of the lighting, which should be appropriate to a high quality, aesthetically pleasing and environmentally aware UESP setting.

3.96 Lighting levels within the park should be adequate to achieve good personal security at night. Particular attention should be paid to lighting obstacles, such as planting or street furniture, that need to be negotiated by drivers and by people on foot. To reduce clutter along footpaths and roadways, combined lighting units should be considered, particularly where road and pedestrian lighting are required adjacent to each other.

3.97 Even lighting levels, avoiding pools of light and dark, will make access easier for visually impaired people. Despite the extensive highway lighting present along the western and southern site boundaries the avoidance of light pollution will be a requirement of the development.

3.98 The design of lighting equipment and installations will need to be subject to assessment in order to demonstrate that diffuse light pollution and/or adverse light impacts on neighbouring properties are avoided. A Lighting Strategy should be provided as part of planning applications for development at UESP. This should be predicated on the need to avoid all off-site light pollution, including upward lighting spill. Design measures may include dimming at night, zero upward transmission, motion-activated lighting, low height luminaires and directional. In all cases, low energy installations should be specified where they can deliver appropriate standards of illumination.

3.99 Figures 3.5 and 3.6 provide examples of the standard of design quality that must be achieved at UESP. These are illustrations of Stockley Park in west London, a premium business park location where the quality of the environment is recognised as a key factor in the quality of tenants attracted and its commercial attraction.

The proposals should seek to enhance the setting of the buildings and infrastructure by integrating them in with the landscape of the Science Park, and wider landscape character. This approach is demonstrated within Stockley Park, where buildings appear to merge with naturalised landscaped surroundings including lakes, expanses of meadow grassland and areas of native tree planting.

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KEY //

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Figure 3.5 Formal and Informal Landscape Treatment

Figure 3.6 Signage and Design Quality

Site signage within the Science Park should be set out to provide a clear hierarchy of way marking to facilitate orientation for pedestrians and road users. This is highlighted at Stockley Park where a family suite of corporate signage is located to identify individual buildings and businesses, which is complimented by appropriately positioned directional and information signage of the same material and style.

Stockley Park highlights the importance of using site furniture relative to its intended use and location, where informal seating areas such as individual timber benches are provided to enable users' a degree of privacy and space for quiet contemplation away from the hectic built environment of the business park.

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Development Briefing Summary

3.100 Set out below are key development design requirements that need to be articulated through the Masterplan process, and which reflect the discussion above.

Site Planning

- The landscape strategy, including for the provision of open spaces and setting of buildings must be a fundamental part of the development design process;
- The overall approach should seek to maximise passive design opportunities. For example, it can optimise use of the south facing slope of the site for solar gain where that is appropriate;
- Avoid overshadowing between buildings unless as part of solar gain management;
- Group buildings where appropriate in order to create sheltered environments for users and the buildings themselves;
- Use shelterbelts to protect buildings from cooling air flows;
- As part of the Exeter and East Devon Green Infrastructure strategy, realise opportunities for biodiversity enhancement through management and enhancement of existing parkland and treed areas of the site and through new habitat creation possible in the landscape and SUDS strategies;
- Landscape planting to be of local native and food bearing species;
- Create wildlife corridors linking the site with adjoining areas;
- External lighting levels should be the minimum necessary to achieve safety and enhance the science park environment;
- Lighting with upward or horizontal throw should be avoided and directional, low energy luminaires employed with motion detection where appropriate;
- Minimise non-porous hard surfaces;
- Use soakaways, filter strips, swales and occasional wetland areas to attenuate surface water runoff (no open water bodies);
- Install oil and silt traps in areas at risk of polluted runoff – e.g. car parks; access roads;
- Avoid need for irrigation of landscape planting;

Construction Principles

General

- Materials balance for cut and fill operations;
- Minimise adverse effects on soil resources – use topsoil resources in landscape and biodiversity enhancement on site;
- Protect trees, including root systems from damage;
- Use of CEMP to manage the construction phases and avoid adverse environmental impacts;
- Construction waste arising from the development should be sorted on or off-site for materials that can be re-used or recycled.

Buildings

- Thermal insulation to above current Building Regulations requirements;
- South facing windows should be optimised to allow solar gain;
- Speculatively developed buildings to be constructed with moveable partition walls in order to maximise flexibility.
- Consider use of 'green roofs' for insulation, rainwater attenuation, habitat and landscape/visual benefits;
- Provide for waste management facilities within buildings and at one or more collection points in the site.

Heating and Cooling

- Consider use of active solar technology for heating and power generation;
- Consider use of innovative technologies such as ground source heat pumps;
- Employ heating plant that can be adapted to use a range of different fuels e.g. bio-fuels, wood pellets, and which include heat recovery from ambient and waste air/water sources;
- Ensure all buildings have a comprehensive energy management system (EMS);
- Maximise natural lighting and ventilation. Reduced plan depth provides for this;
- Consider use of larger areas such as atria, with wind towers if necessary, for stack ventilation;
- Avoid mechanical air conditioning;
- Consider linking two or more buildings to achieve scale economies in heating and cooling;
- Cut buildings into the slope where appropriate to utilise constant temperature effects of subsoil and/or consider opportunities for earth sheltered buildings.

Water use

- Install rainwater harvesting equipment to reduce water consumption for grey water uses (and to reduce surface water management needs);
- Employ greywater recycling;
- Install tap flow restrictors and other water economiser equipment.

Transport and access

- Provide convenient routes for pedestrians which reflect desire lines into and within the site which are safe and attractive to use;
- Provide clear signage and pedestrian route lighting;
- Design all pedestrian routes inherently for disabled users;
- Design access roads for low speeds (20mph design-speed) to create high quality environment that is pedestrian-centric;

- Create a pedestrian and cyclist-friendly microclimate through appropriate landscape planting and building positioning;
- Provide safe cycle routes, and secure and convenient cycle parking facilities;
- Link cycle routes within UESP to the wider network locally;
- Ensure provision is made for bus facilities at the outset of Phase 1, and increased bus penetration as UESP grows;

4 Securing the Form and Quality of Development

4.1 A priority is that UESP is brought forward as a science park and is able to be maintained in that use into the future, therefore ensuring "*scope for the development of a cluster of knowledge based businesses and science based companies*" and that "*development at the science park should be strictly limited to such specialised uses*" (taken from the preamble of Structure Plan policy ST19). The primary mechanism for this will be the management of the UESP by the operating company (as currently proposed) and it is anticipated that the UESP will only accept tenants who satisfy criteria related to their technology content and growth potential.

4.2 It is prudent to ensure that there are legal planning controls in place which will ensure that the long term objectives for the UESP are maintained in a changing economic and development climate. This part of the SPD sets out the options available for securing such control.

4.3 Careful thought has been given to the definition of 'science park' (and in turn to the description of development in the planning consent), and to the criteria to be used to screen businesses who will want to move to the park, in a way that is enforceable.

4.4 The definition of a science park now used by United Kingdom Science Park Association is:

A science park is a business support and technology transfer initiative that:

- *Encourages and supports the start-up and incubation of innovation-led, high-growth, knowledge-based businesses.*
- *Provides an environment where larger and international businesses can develop specific and close interactions with a particular centre of knowledge creation for their mutual benefit.*
- *Has formal and operational links with centres of knowledge creation such as universities, higher education institutes and research organisations.*

4.5 In essence, the legal framework within which the UESP will be established, promoted and used must:

- Establish a clear and workable definition, and criteria for establishing just what a science park is and which types of businesses will meet the aims of the park:
- Provide for ancillary uses to further those aims; and

4.6 One of the principal problems is the definition of science park and the criteria used to assess suitable occupiers. The pace of technological change is rapid: today's definition may not suit tomorrow's needs. If it is drawn too widely certain borderline uses may encroach that could be better suited to a traditional business park while, if drawn too narrowly the life-blood of UESP may be constricted.

4.7 It is essential that the UESP, once defined and established, does not mutate into 'just another business park'. This aim will be achieved with a combination of the planning policy framework, the use of conditions as part of any planning consent granted and the use of a Section 106 legal agreement with a planning consent.

The planning policy framework

4.8 The policy framework is provided by Structure Plan Policy ST19, and this SPD. The SPD forms part of the East Devon Local Development Framework and will link to the Development Plan

Documents of the LDF when they are available.

The grant of a conditional planning consent

4.9 Control will be achieved principally by a combination of the description of development and the conditions imposed on grant of consent.

4.10 Planning consent, which will incorporate the detailed application and plans, will seek to permit the use of the UESP (however that is defined) and the conditions will, inter alia, seek to ensure the continued use of the site and its component parts as such.

4.11 The science- and knowledge-based enterprises that UESP will attract fall within class B1 of the Use Classes Order (UCO). However, B1 is wider in its scope and encompasses office and business uses significantly removed from the science park concept. The UCO/General Planning Development Order (GPDO) enables the use of land to change within any of the B1 uses without the need to apply for planning permission. Such changes of use do not amount to development and in this case could result in a use potentially inconsistent with the aims of UESP.

S106 planning obligation

4.12 The precise content of a S106 will be determined when a planning application comes forward. Science Park developments elsewhere in the UK have been reviewed during preparation of this SPD for examples of best practice in applying planning control. Drawing on this review it is proposed that a S106 obligation will follow a model as set out below, responding to the scheme description as necessary.

4.13 The vision for UESP is to develop an initial Phase 1 to provide a central facility for business exchange and networking, with canteen/conference space. Provision of an hotel during Phase 1 of development also forms part of the UESP business case. This will be used by visitors to the UESP but its proximity to the M5 will also make it an attractive location for business and leisure visitors alike. This use, along with other ancillary uses such as a café, crèche, and gymnasium, will not dilute the essential character of the park provided they remain in balance with the principal use of the UESP as a whole.

4.14 Phase 1 will focus on incubator units for embryonic science-based businesses and UESP administration and related marketing space will also be accommodated. This will be developed under an outline planning permission that will also apply to the overall UESP site. The area of the site not taken up by Phase 1 will be consented for development that could include the following uses:

i. B1

ii. Other science related uses to be determined by the Council in accordance with the criteria:

1. the use or operation is of a scientific or technological or medical research nature, or

2. the use would benefit from a location within a science park and would make a significant contribution to its achievement, or

3. a minimum of 20% of the area occupied by a single occupier is to be used for research and development, or

4. The characteristics of the use or operation would assist in the achievement of the objectives of UESP.

4.15 Further controls may also be imposed by the phasing of development (ensuring the Phase 1 content is built and occupied first), and limiting available space for B1 uses to a fixed percentage of hectare space within designated zones.

4.16 The obligation would be worded in such as way as to bind the owner not to permit any uses other than as set out therein, except with the written permission of the Council.

4.17 The required control will thus be imposed by limiting the amount of B1 space to be available, by allowing a core use which is sui generis and which stamps the character on the park in a way that would draw like-minded enterprises to it, and by imposing obligations on the owner only to permit sympathetic uses on site.

4.18 It is proposed that this model will be used at UESP with a condition removing permitted development rights and therefore preventing changes of use to uses inconsistent with the aims of UESP. This would be coupled with a s106 obligation spelling out in detail the uses that will be acceptable and this demands a comparable vision as its basis if it is to achieve the same element of control.

4.19 In conclusion it is proposed that a combination of accurate planning permission description, planning conditions (including removal of permitted development rights to prevent changes of use to uses inconsistent with the aims of the UESP) and a S106 obligation is used. The proposed description of uses at the site is as follows:

Buildings on the site shall only be utilised for the following uses within the Town and Country Planning (Use Classes) Order 2006:

1 Class B1(b) research and development of products and processes.

Or

Class B 1(a) Offices or B1(c) light industry where:
The local planning authority is satisfied that there is a genuine need for the primary activity to be located on the science park due to the specific nature of the activities undertaken or involve research related interactions with local universities, major employers in the region or other occupiers of the science park.

2 Classes A Retail, D1 Non-Residential Institutions and D2 Assembly and Leisure provided that they are ancillary to the primary use of the site as a science park.

5 Infrastructure

Introduction

5.1 Service enquiries have been undertaken in the preparation of the SPD, but these will need to be reviewed at the time of preparing a planning application. It will be essential to consult with all utility providers about services that may lie within the site before any invasive site investigation or construction works commence.

5.2 All utilities within the site should be installed underground in order to avoid clutter, and service ducts should be sized to allow future upgrading and as appropriate.

Access

5.3 Access by bus and car to UESP for Phase 1 of development may be derived from the existing access to the A30 at Blackhorse, subject to highway improvements. This will be addressed as part of the preparatory work for the planning application for the development with the floorspace that can be occupied under different scenarios confirmed by the necessary Transport Assessment.

5.4 The Phase 1 Access Strategy for East of Exeter includes the Clyst Honiton Bypass as a key element. Work is being progressed concurrently to develop the Phase 2 Access Strategy for East of Exeter, which will include improvement of M5 Junction 29 and a realignment of the old A30 from which the Science Park site will be accessed. Early implementation of this part of the Phase 2 Access Strategy would provide an alternative means of enabling part of the Science Park to go forward. The improved Junction 29 is proposed to be a signalised interchange, which will allow all-ways movements from the M5 and A30 so that vehicles can turn north or south on the M5 and east or west on the A30 from whichever approach direction. The junction improvements form part of the overall transport infrastructure package required for delivery of housing, employment and service provision in the growth area east of Exeter.

5.5 Delivery of further UESP capacity will need to await completion of Phase 3 of the Access Strategy for East of Exeter, a new access to the Growth Point Area east of Exeter. Work on this phase of the strategy has only recently commenced.

5. 6 Access by pedestrians and cyclists to the site will be via existing road and footpath routes, particularly the minor roads to the north of the site, and via footways and cycleways implemented alongside the highway as part of the Access Strategy for development east of Exeter.

Electrical supply

5.4 A 132kv power line crosses on pylons in a south west-north east direction between the site and Blackhorse to the east and an 11kv line runs along Blackhorse Lane underground. Historically there were underground cables supplying Redhayes House and North Lodge and these will remain in-situ running northwards from the A30 frontage in the field west of the entrance drive. It is likely that these are now redundant but this would need confirmation prior to any works commencing on site.

5.5 Connections exist from the 11kV line to pole mounted transformers on Blackhorse Lane, but these would not be adequate to supply UESP. A new supply will be required and this may be derived from the 132kV supply with an appropriate substation, or may be provided from the network further to the west.

5.6 Western Power Distribution (WPD) has indicated that its preferred

option to supply the development will depend on the scale of the electrical demand presented together with the cost of connection, and this will require further investigation as the proposals are refined. One option is to supply from the west at 33kV, requiring a new 33/11kV substation on the site. A supply from the 132kV line may also be possible but would require a new 132kV/11kV substation and a possible new pylon or modifications to an existing one. Technical proposals will need to be discussed further and agreed with WPD as development proposals are brought forward.

5.7 In principle, electrical supply can be provided without capacity constraints, but as the electrical demand increases, the cost and magnitude of the infrastructure needed to for supply is also likely to increase.

Water supply

5.8 A trunk water main lies along the alignment of the old A30 to the south to the site, running south of the A30 west of Redhayes Lodge, and then crossing under the dual carriageway to run in the strip between the A30 slip road to Blackhorse and the access road passing along the southern frontage of the site.

5.9 Distribution water mains run along Blackhorse Lane east west through the site, and north south along the western boundary to the M5.

5.10 Capacity exists to supply Phase 1 of UESP from existing infrastructure at normal connection costs. As UESP expands there may be a requirements to upgrade the supply, depending on the scale of demand. However, the local supply will be upgraded as part of infrastructure improvements needed for the Cranbrook new community, and it is anticipated that a secure supply can be provided to UESP as part of these wider improvements.

Foul water drainage

5.11 A gravity public combined (surface water/foul) sewer serves the residential development east of the site at Blackhorse but does not extend into the site area. This would not, in any event, be adequate to take flows from UESP.

5.12 Sewage discharges from the local area currently run via the Blue Ball Pumping Station to the Countess Wear Sewage Treatment Works (STW). Both the trunk sewer used for this transfer and Countess Wear STW itself, the main works for Exeter, have limited capacity, and the Countess Wear facility is also required to cater for future growth within the Exeter city area.

5.13 As a result, South West Water is planning a new STW. Planning permission has been granted at Mill Lane north east of Blackhorse for a new STW to serve the Cranbrook New Community and other proposed development in the vicinity, including UESP. This will provide significant additional treatment capacity on the western edge of East Devon District adequate to serve UESP development, and will be delivered in advance of Phase 1 of UESP. The proposed works will be modular in design, and will be expanded in response to demand, as Cranbrook, UESP and other development experience phased growth.

5.14 The connection to the new STW from UESP will need to be determined at the masterplanning stage, but it is anticipated that a gravity foul main could be installed along Tithebarn Lane, or a connection could be made to the existing sewage infrastructure which will be reconfigured to drain to the new works.

Surface water drainage

5.15 The approach to surface water drainage will be addressed through a comprehensive SUDS strategy for the site. This will be required to result in net surface water runoff characteristics that match the existing greenfield site. There will therefore be no requirement to use existing surface water sewer capacity near the site.

5.16 The SUDS strategy has been referred to at Chapter 3. Hard surfaces will require permeable paving techniques to maximise infiltration of surface water on roads, paths and paved areas, combined with engineered drainage to take storm water to attenuation features.

5.17 As with other development on similar soils and geology locally, there may be difficulties disposing of all surface water, following intense or prolonged rainfall, via infiltration techniques without some substantial water storage capacity being provided that will store and slowly release flows into the ground as conditions dictate. There will also be a need to provide a "fail safe" flood route for flows that may exceed the scheme's design.

5.18 Large scale surface water storage capacity is best achieved above ground where it can benefit wildlife and landscape diversity objectives. Due to the sloping nature of the site this will require clever and careful design to ensure that the features have biodiversity value. In order to avoid creating open water bodies that may lead to flicker effects or attract waterfowl in this location near to Exeter Airport, careful design and planting will be required.

5.19 This may be achieved with narrow sinuous features, planted with scrub and tall grasses, which can also be accommodated on the sloping parts of the site. The SUDS scheme will need to be designed to take full account of predicted changes in rainfall patterns due to climate change. SUDS design will need to be discussed and agreed with the Environment Agency.

5.20 Rainwater harvesting should be employed in buildings in order both to reduce consumption of treated water and to reduce the need to drain water collected from roofs.

5.21 Oil and silt traps will be required where there is potential for runoff to be polluted. Due to the phased nature of development that will take place, over an extended period, it will be particularly important to ensure that any construction activities within UESP are securely drained and that they do not risk polluting the surface water drainage system at the site.

Telecoms

5.22 Normal telephone connections are available to the site but there are no high capacity data connections currently available. The most modern and flexible ICT infrastructure will need to be installed at development commencement to achieve a competitive edge and one of the Unique Selling Points of UESP. The highest bandwidth communications infrastructure and the latest ICT infrastructure should be provided on site and installed into every new building as they are completed.

5.23 The specification for such connections will be determined when the Phase 1 development is designed. The technology involved may evolve between publication of this SPD and commencement of development at UESP and therefore no detailed assumptions on connection have been made.

Gas

5.24 A medium pressure gas main passes along the A30 site frontage, partially within the site. A low pressure main lies in Blackhorse Lane and extends from the east to the edge of the residential

development on the lane.

5.25 Capacity to supply Phase 1 of UESP is understood to be available at normal connection costs. Supply for the later phases will depend on the scale of demand arising from the size of phased development and the extent of any special needs anticipated. A distribution network will be required within the site and it is proposed that this is planned as part of the Masterplan process for UESP.

6 Phasing and Future Growth Options

6.1 The proposed pattern of phasing is illustrated in Figure 3.4 in Section 4. Essentially, only Phase 1 is presented with any quantitative assumptions, as later phases will respond to demand and may be brought forward in a combination of speculative development and in response to particular user requirements.

6.2 Phase 1 will provide the initial Science Park Centre building of around 3,000m^2, providing a small area of UESP management and marketing accommodation and a range of flexible space for use by small and medium sized enterprises seeking to develop science and technology based business. The building may also provide ancillary facilities such as a café and/or crèche, but these will need to respond to the scale of demand from occupiers.

6.3 Subsequent phased growth of UESP will progress northward and in a north-westerly direction, following the eastern and northern flanks of the small ridge that the former Redhayes House stood on. The precise pattern of development will respond to the Masterplan that is to be prepared as the next stage in delivering UESP, following adoption of the SPD.

6.4 The scale of development envisaged for UESP is in the order of 50-55,000m^2, or up to about 600,000ft^2 gross floorspace and it is anticipated that this could be brought forward in the period to 2026, dependent on demand.

6.5 If greater than predicted demand were to be experienced then there would be opportunities to modify the development strategy over the development period of UESP in order to allow a higher final floorspace. An increase in total floorspace would most easily be accommodated through an increase in footprint density – i.e. more building per hectare. This could be achieved if necessary for the later phases of growth, and it is considered that the site could accommodate an additional 25%-30% capacity without adversely affecting the character of development. Any such change would, however, need to be planned for in advance of developing out the currently assumed scale of accommodation so that the density could be masterplanned, and not achieved by 'filling in the gaps'.

6.6 An alternative approach to increasing density would be to allow higher rise buildings. Taller buildings would allow higher densities to be achieved but can also be an opportunity to create a more vibrant development through a varied roofscape and different height/massing combinations. Such opportunities must be evaluated carefully within the overall context of the landscape setting and key views into the site. This issue will be addressed through the master planning for the development.

6.7 The final opportunity for increasing the scale of accommodation at UESP would be to expand the site beyond the currently proposed boundaries. This could, in masterplan design terms, be achieved by taking in land north of Blackhorse Lane, and/or land between the proposed site and the residential development south of Blackhorse Lane. This is not currently anticipated to be required for UESP but remains an option for future evaluation and consultation if appropriate.

7 Requirements of a Planning Application

7.1 A planning application for UESP will need to include within the red line the entire development area identified, and should be based on a comprehensive Masterplan for the development. It is recognised, however, that the growth of UESP over time will need to respond to user requirements rather than present an inflexible pre-determined approach.

7.2 Therefore an Outline planning application based on a Masterplan and 'Parameters Plan' is the preferred approach. A Reserved Matters application would then be required for the Phase 1 development (which could be submitted simultaneously if necessary), and for subsequent elements or phases of growth. Any Outline planning permission granted will include conditions requiring Reserved Matters applications to accord with the Parameters Plan as a primary requirement, and with the Masterplan.

7.3 A formal EIA will be required to accompany the Outline planning application and will need to consider the totality of UESP development. The Parameters Plan is of central importance to the planning application and should define the environmental impact 'envelope' within which development and its effects will remain. The Parameters Plan and accompanying text should set the upper limits for aspects of UESP that may have environmental impacts, and present the assumptions that will be subject to Environmental Impact Assessment (EIA). The parameters must be defined in sufficient detail, and will be conditioned in any Outline permission, in order to avoid the need to undertake fresh EIAs at Reserved Matters stages.

7.4 This approach allows a legislatively compliant EIA to be undertaken of outline proposals when certain detailed aspects may not be fixed until some years in the future. It also allows it to be made clear that if future requirements at UESP take development outside the envelope defined in the Parameters Plan, then a new EIA would need to be undertaken to assess any impacts arising from the exceedance of that envelope.

7.5 The Parameters Plan will define limits to the development for the purposes of EIA and will need to run closely alongside the Masterplan. The two can be combined if necessary. The precise content will therefore respond to the Masterplan proposals, but should include:

- Total floorspace, including for individual phases as appropriate;
- A robust Phasing Strategy;
- Number of storeys and building heights at different parts of the site;
- Densities and distances between buildings and between built form and site boundaries;
- Precise disposition of individual buildings where these may be sensitive in relation to landscape and visual impacts;
- Extent of any below ground excavations and basements;
- Site modelling materials balance;
- Trip generation figures, including for given stages of development and in relation to external constraints on nearby junction capacity;
- Noise, vibration and air quality limits during construction and operation;
- Quanta for areas of formal and informal open space;
- Detailed and measurable proposals for habitat enhancement and creation in order to increase biodiversity interest at the site

7.6 The scope of the EIA should adhere to appropriate statutory and best practice guidance and should include

- Cultural Heritage
- Ecology and biodiversity
- Landscape and visual
- Air quality and climate change
- Noise and vibration
- The water environment (hydrology; hydrogeology; water quality)
- Geology and soils (including contamination)
- Socioeconomic effects

7.7 In addition to an EIA a full Transport Assessment and set of Workplace Travel Plans will be required. The travel plans should adopt a framework approach rather than seek to address all issues in a single plan. Therefore there should be an overarching travel plan for the Science Park under which each individual employer should produce their own travel plan according with the overarching objectives and providing personalised travel planning to all new employees.

7.8 UESP forms part of the Exeter Growth Point development, and needs to be understood in the context of the Cranbrook new community, Skypark business park, Freight Intermodal scheme and improvements to Exeter Airport together with the emerging Access Strategy for the growth proposals in East Devon east of Exeter. It is important therefore that the EIA and TA consider the cumulative and in-combination effects of UESP with these other strategic developments, including at different stages of completion.

7.9 Supplementing the Parameters Plan should be:

- A Design Strategy
- A detailed Sustainability Assessment (as per policy G of the emerging RSS), to include a Health Impact Assessment;
- A Lighting Strategy;
- A Construction Environmental Management Plan (CEMP); and
- A Site Waste Management Plan

7.10 The CEMP should include measures to avoid and manage potential adverse construction impacts, and maintain public rights of way within the site at all times.

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