Bath Urban Extension

Development Proposal - February 2011

The Prince's Foundation
FOR THE BUILT ENVIRONMENT

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FOR THE BUILT ENVIRONMENT

The Prince's Foundation for the Built Environment seeks to improve the quality of people's lives by helping to build and improve communities that are beautiful, long lasting and healthy for people and the planet.

We believe that if we can understand and apply time-tested principles, building once more in a sustainable way, we will reap improvements in public health, in livelier and safer streets and in a more affordable lifestyle for families and individuals. The Prince's Foundation for the Built Environment believes that building in a sustainable way will reap benefits for communities and result in neighbourhoods that accrue higher value over time.

Contents

1. Introduction

1.1 How should the Duchy reconcile a natural instinct to preserve the countryside with the needs of a growing population and economy to build on its land adjacent to settlements? This document summarises the studies necessary to draw out informed conclusions in sufficient detail to enable a judgement to be made. The Duchy remains of the view that if an urban extension to Bath proves to be needed a sustainable solution is possible given the identified constraints and the particular attributes of this site.

1.2 The Council's allocation of the 'land West of Twerton' in its Core Strategy (2009) recognised the geographic serendipity of the location. Level with the City Centre and adjacent to the main transport corridor (rail, cycle, road and river) the site is hallmarked in terms of potential sustainability. Its extensive rural hinterland in the same single ownership broadens the potential to embrace options for renewable energy, waste and water management, food and recreation.

1.3 The Duchy and the Prince's Foundation believe that well conceived development can inspire good things and have identified opportunities specific to this site which could make a broader contribution towards the Council's Corporate Strategy.

1.4 This development proposal document has been prepared by The Prince's Foundation for the Built Environment, in association with Adam Architecture, Aiyana Ltd, Buro Happold, Camco, Cotswold Archaeology, Lear Associates, Peter Brett Associates, RPS Group and WSP Group on behalf of the Duchy of Cornwall.

1.5 The document demonstrates that the land to the west of Twerton represents a suitable, available, and deliverable development site for future growth of the city of Bath which has the potential to create a sustainable settlement.

1.6 Alongside supporting studies commissioned by the Duchy of Cornwall which demonstrate the continuous growth of Bath since its Georgian heyday, this report identifies the numerous benefits that the development could provide for Bath as well as neighbourhoods such as Twerton and the rural hinterland.

1.7 Bath and North East Somerset (B&NES) put forward this site (Core Strategy Spatial Options) in October 2009 for development as the preferred option for the future growth of Bath. The Draft Core Strategy (2010) removes this site as a potential urban extension on account of an overall reduction in housing numbers not needing it; and the regeneration of previously developed land within the urban areas being the priority. However, this report demonstrates how the site could provide a unique opportunity to incorporate key land uses from the city centre, therefore freeing up brownfield land for redevelopment in a manner sensitive to the Georgian core of the city.

1.8 An evidence base has been assembled to demonstrate that the site is deliverable and would offer significant benefits in terms of its ability to provide a sustainable urban extension to Bath. The site has the potential to deliver up to 2000 homes and an illustrative concept masterplan has been prepared to indicate how these benefits could be achieved.

1.9 Whilst the illustrative masterplan has been based on input from a number of consultants and technical studies, it is the Duchy's intention that it would be taken forward through the Prince's Foundation's Enquiry by Design process. This is a collaborative planning and design tool that aims to bring together all key stakeholders (including local authorities and communities) in order to develop a shared vision for the site.

The Site - From the Globe Roundabout

2. Site History

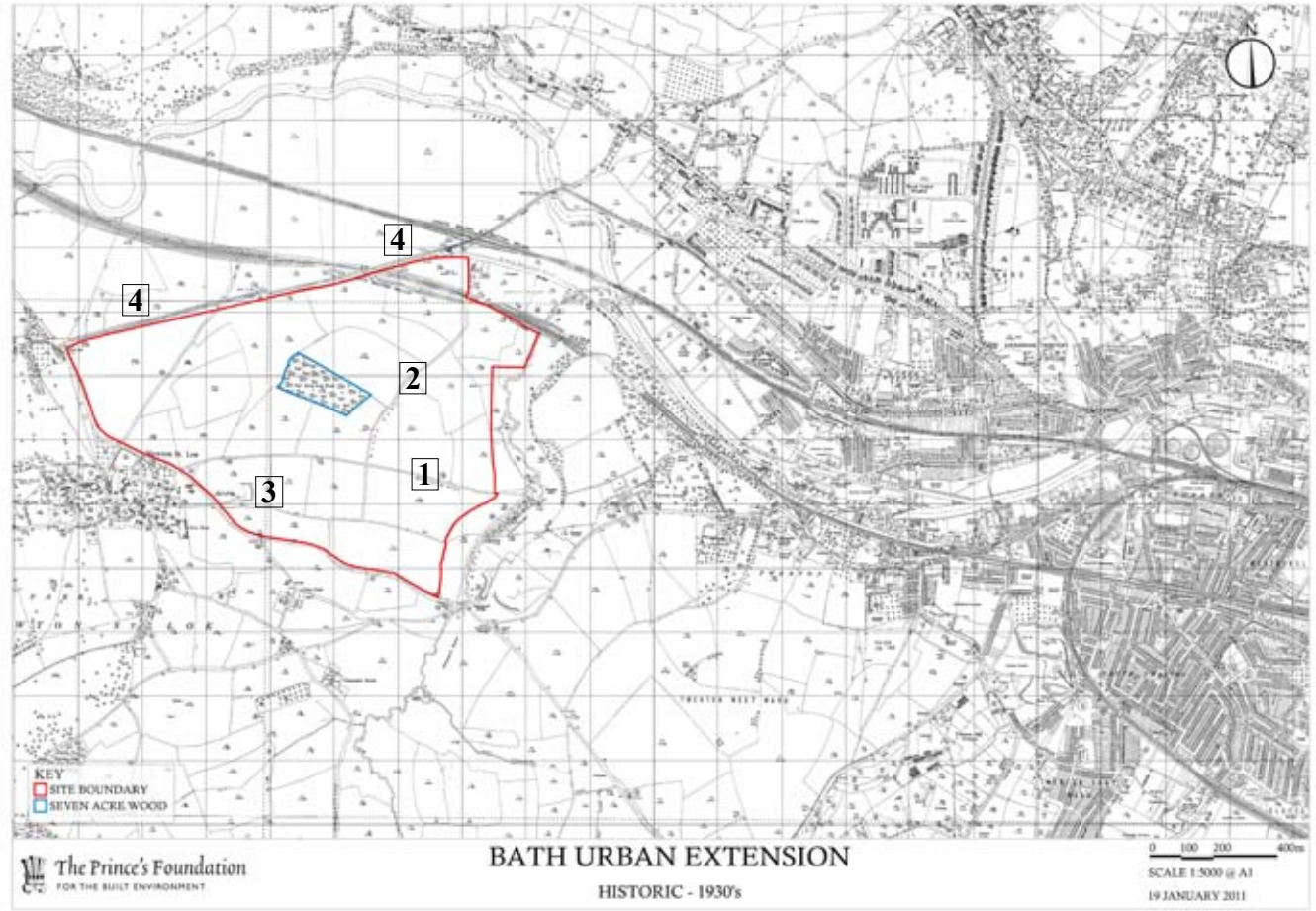
2.1 Although the site has historically been part of the rural hinterland of Bath, this map from the 1930's shows how the legacy of the industrial revolution had already brought the farmland closer to the city through Brunel's railway, laid in the mid 19th century.

2.2 Bath itself continued to expand westwards throughout the 19th and 20th century so that the site now sits on the urban edge. Seven Acre Wood in the centre of the site dates from around 1850 but substantial portions are more recent. From the study of historic plans we note that approximately 1.3km of field boundaries were lost from the site between 1789 and 1888 and a further 3.3km between 1888 and 2010.

2.3 Aerial photographs taken in 1948 show that approximately 100 mature trees, almost certainly English Elm, have been lost from the site in the last 60 years. It is likely that these trees dated from before 1780, if not considerably earlier. Unfortunately no Inclosure Act for the parish has been located to enable confirmation of a precise date for the field boundaries in this area. We do know however, that whereas in 1840 the site consisted of 28 land parcels, by 2010 this had been reduced to 13 parcels, including Seven Acre Wood and a new area of woodland near Newton Brook.

2.4 Running east-west near the crest of the hill is Waltining Lane (1), an historic track linking Newton St Loe to the former Newton Mill (corn), which was powered by Newton Brook and now forms the boundary with Twerton. Another route, known as Stony Lane (2), ran north-south and bisected Waltining Lane. Old maps also show quarries (3) and coal pits (4) in various parts of the site.

2.5 Historically, Twerton had a close association with Newton St Loe, and for most of the 18th and 19th centuries was both physically and administratively separate from the City. The parishes of Twerton and Newton St Loe both belonged to the Wellow Hundred along with Englishcoombe and Corston.



3. World Heritage City

SCOPE OF STUDY

3.1 There is a huge amount of contemporary sentiment about the historic artefact that the City has become, but less focus on the factors which caused it to come into being and subsequently evolve. To better understand these processes, the Duchy of Cornwall commissioned a Heritage Study for the City of Bath with the purpose of making a spatial and architectural analysis from primary sources. The study will provide a research tool and method of engagement with stakeholders and heritage groups, and produce materials for public dissemination of the information.

FINDINGS

3.2 The broad conclusions are that Bath has changed considerably and the most significant portions and effects were not originally planned. The planning of new residential areas has largely been determined by land ownership and by individual developers. No overall plan was imposed by Bath Corporation any more than it was in Georgian Bath.

3.3 The urban- rural interface has been continually renegotiated. When assessed objectively, much damage to the genius of Bath's heritage has occurred in the 20th century, having survived the coming of the railways in the 19th century relatively unscathed. Any number of causes and outcomes can be implicated in the changes that have occurred but include; road infrastructure and the impact of the motor car; large scale housing development which responds to the topography in a different manner to Georgian and Victorian development; demolitions for improvements (the sack of Bath in the 1970s); and insensitive development of brown field sites on the river corridor and the rim (eg Hilton Hotel and Bath University at Claverton). The extent of these changes would have been visually greater, had it not been for the use of local stone which reinforced the natural harmonics of the area's geology and created a degree of harmony with the buildings of Georgian Bath.

3.4 Other less obvious changes have affected the landscape setting, for instance the Georgian preoccupation with conifer plantations on the tops of the slopes has been replaced by a present day preference for broadleaves. In addition, Victorian tree planting within the city's urban infrastructure means that today the inter-visibility of some Georgian architectural set-pieces and views are obscured or substantially reduced by the growth of urban trees. Change in the hedgerow composition and the impact of Elm disease has also critically impacted upon the visual quality of the surrounding countryside.

3.5 With evolving policy directed at understanding the setting of Bath, this is an opportune time to critically evaluate the evidence at hand. The understanding of the processes of change and growth will enable greater acuity in the protection of heritage assets and identification of areas where there is reduced sensitivity. This will be an essential step if Bath is to grow and thrive whilst continuing to develop policies worthy of its World Heritage Site status.

4. Sustainability Review

SCOPE OF STUDY

4.1 The Duchy of Cornwall commissioned a sustainability review of the area to the west of Twerton to understand whether, with the constraints and opportunities of the site, it was possible to create an urban extension that encouraged people to live in a more sustainable manner, reducing their impacts on the environment and creating a place where people wish to live and work.

4.2 The review took a broad approach to sustainability, addressing the environmental, social and economic aspects of sustainability, while including more nebulous elements. The following elements are considered:

- Control and minimise carbon emissions (including transport issues)
- Efficient and responsible use of resources
- Create socially inclusive developments
- Create a sense of place
- Enable and encourage sustainable lifestyles
- Health and education
- Diversifying and strengthening the local economy
- Beauty
- Play
- Provide for appropriate protection of the natural environment

4.3 The following reports have been produced to date:

- Sustainability Review - July 2008
- Sustainability Review - January 2011

FINDINGS

4.4 The site provides obvious benefits for creating a sustainable settlement, such as the transport links adjacent to the site - rail, cycle, road and river - and less obvious ones, such as proximity to the rural hinterland, and the potential to enhance the western setting of Bath, by responding to the existing landscape setting.

4.5 It also has constraints, which might hinder creating a more sustainable settlement although these may be mitigated through good design, such as the flood plain, archaeological sites, the landscape setting, connections into Twerton and the north facing slope.

4.6 With the Duchy of Cornwall's approach to both high quality design and sustainable development, the sustainability review indicated that on the west of Twerton site it was possible to create a development that addresses the sustainability objectives and allows people to live their lives in a more sustainable manner.

Victorian and 20th century transport orientated development


Character and a Sense of Place

5. Policy Context Planning Policy

5.1 The Draft Core Strategy (December 2010) puts in place an updated strategic planning framework to guide change and development in the District over the next 20 years and beyond. This comes at a time when the housing requirements put forward in the local plan are due to expire in 2011. The document does not identify a need for the site West of Twerton to be brought forward within the spatial strategy allocation of 11,000 homes.

5.2 Instead, the strategy aims to prioritise brownfield land as far as possible, align new development with the necessary infrastructure and begin to address the jobs / homes imbalance across the District. It is heavily reliant on providing 2,500 within the outer neighbourhood of Bath including 850 homes from Ministry of Defence sites and 1,500 homes on infill plots within Bath, together with 2,000 homes within Western Riverside.

5.3 However, land West of Twerton was identified as the Core Strategy Preferred Option in December 2009 for 2,000 homes and 1,144 jobs as part of the spatial strategy for 15,500 homes. Providing new premises for key land uses within the Urban Extension, will allow for the sensitive redevelopment of central brownfield sites where there is potential for direct impact upon the core heritage assets of the city and its close-in views.

5.4 The work undertaken during 2010 to investigate the feasibility of the Bath Urban Extension has been collated to inform the Examination in Public on the Draft Core Strategy. The revised core strategy identifies the following key objectives.

Pursue a low carbon and sustainable future in a changing climate

5.5 One of the Duchy's underlying objectives is to deliver zero carbon development, which can be achieved through a combination of on-site solutions, including good thermal performance of building fabric, and renewable and low carbon solutions such as the use of photo voltaic panels on hidden roofs and ground source heat pumps as well as off site solutions. The unique ownership of Duchy land also provides opportunities for renewable solutions that could include anaerobic digestion and biomass or biogas from the rural hinterland.

Protect and enhance the District's natural, built and cultural assets and provide green infrastructure

5.6 The masterplan is informed by a comprehensive analysis of the growth of Bath, the historic landscape, ecological and archaeological constraints. Detailed assessment of the archaeological resource has identified two locations that represent a constraint: the Roman villa complex and the Roman Cemetery. The masterplan successfully deals with these.

Encourage economic development, diversification and prosperity

5.7 The Bath Urban Extension would meet many of the Local Economic Assessment objectives, as set out below.

5.8 The Twerton site can deliver a suitable and sustainable solution to the lack of available employment land and premises through the provision of a variety of commercial units within the neighbourhood centre and around a potential new rail halt.

5.9 The site could help to provide opportunities for re-skilling the workforce and training in the construction of the development over the 20 year development timeframe (assuming 100 dwellings per annum) and new employment opportunities within the mixed-use development.

5.10 The West of Twerton site has the capacity to contribute significantly to relieve this problem of worklessness, particularly in Twerton, with up to 2,000 new jobs, working on the ratio of one job per household. Opportunities exist to set a template for solutions to achieve 'smart growth' at the Bath Urban Extension.

Invest in our city, town and local centres

5.11 The West of Twerton site has the potential to stimulate situations where re-location might open up early delivery of brownfield sites, such as the potential for the city centre police station to be relocated. Links to Twerton could help to regenerate this existing community through shared resources and access to employment.

Meeting housing needs

5.12 The West of Twerton site can deliver a suitable and sustainable solution to housing affordability including a range of long-term affordable housing options.

Plan for development that promotes health and well being

5.13 The West of Twerton site will encourage walking and cycling, with links to Twerton, the city centre and the Bristol-Bath cycle route. Recreational opportunities such as playing fields are also provided within the clearly defined internal network of green spaces.

Deliver well connected places accessible by sustainable means of transport

5.14 The West of Twerton site is well located to meet the need to improve linkages with the Universities with the potential for a new bus route through the site linking the city centre with Bath Spa University.

Corporate Strategy

5.15 The planned development on land west of Twerton will provide an integrated urban extension to Bath that can sensitively accommodate future growth and provide a sustainable community in support of Bath & North East Somerset's corporate strategy.

5.16 The Local Economic Assessment addresses three areas:

- Business and enterprise
- People and communities
- Sustainable economic growth
    - Natural and historic environment
    - Low carbon economy
    - Transport and other infrastructure
    - Housing

5.17 It also sets out four cross cutting themes

- Environment, infrastructure and sites
- Homes and population
- Jobs and employment
- Skills

5.18 The Corporate Priorities are:

- Building communities where people feel safe and secure
- Promoting the interdependence of older people
- Improving life chances of disadvantaged teenagers and young people
- Improving school buildings
- Sustainable growth - a thriving and resilient economy will be a key contributor to achieving the other corporate priorities
- Improving the availability of affordable housing
- Addressing the causes and effects of climate change
- Improving transport and the public realm

5.19 Development of land west of Twerton should therefore:

- Make Bath more self -sustaining by providing jobs and employment in the context of a jobs/ housing balance, by providing space to free up brownfield sites, and by helping to regenerate the Western corridor
- Contribute to Bath's sustainability by ensuring that new development contributes to Twerton in a way that reduces energy insecurity by investing in building retrofit, improves life chance for younger people through skills development, and improves safety and security for older people by investing in local centres
- Contribute to Bath's sustainability by providing a walkable, transport orientated development that reduces the use of private cars through provision for a rail halt, bus and car clubs, walking and cycling, and internal trip capture
- Define a good relationship between town and country, enhancing key landscapes and views, protecting adjacent villages and historic parks, reflecting a continuation of and strengthening of Bath's world heritage status, and providing a strong linkage with Bath
- Promote smart growth by building links to Bath's educational institutions and providing small business units and workshops for entrepreneurs

5.20 As an enduring landowner, the Duchy takes a long term approach, drawing upon its extensive experience in community building, and believes that it is right to continue to inform the public debate about the future growth of Bath. This provides the contact for the Duchy to engage locally to explore benefits of an urban extension for Twerton, Bath and the hinterland

6. Site Context

6.1 The site is located to the west of Twerton, directly adjacent to the urban area of Bath. The land is predominantly in agricultural use and covers an area of 88.78 Ha (net of railway cutting), although the Duchy ownership extends to the north, west and south west.

6.2 The aspect is varied but most of the land is north or north west sloping with a range of 20m to 73m with some considerable level differences (up to 5m) in the fields. Existing hedgelines mask some of these level differences. The eastern edge of the site drops steeply to Newton Brook. The site is open in nature other than near Seven Acre Wood which sits in the geographic centre of the site, folding down over the slope towards the A4. Stands of trees have been planted recently on the eastern edge of the site.

6.3 To the north, within the Avon valley, lies the A36 Bristol Road, the River Avon and the Bristol to London railway, taken through this landscape by Brunel in the middle of the 19th Century. The Bristol & Bath Railway Path was constructed on the track bed of the former Midland Railway between 1979 and 1986 and is a key commuter/ leisure route for both pedestrians and cyclists that can be reached through tunnels in the railway embankment over Duchy owned land to the north.

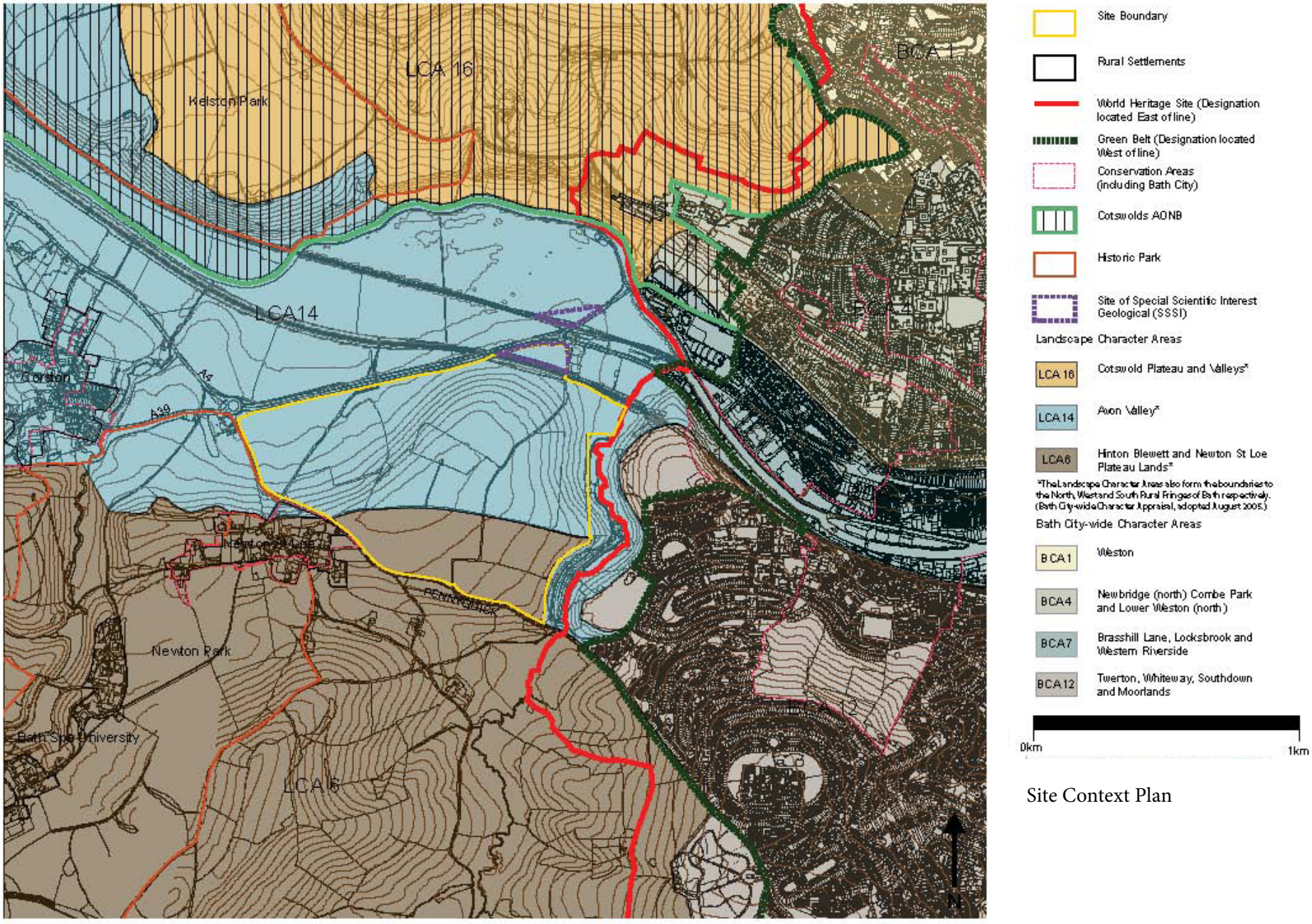
6.4 The site is approximately 2 miles from the centre of Bath (as the crow flies) and 1.3 miles from Oldfield Park Railway Station. The site lies 0.7 miles from the centre of Twerton and just 0.4 miles from key facilities, such as medical centres and infant and primary schools.

6.5 The site is adjacent to the Newton St Loe Conservation Area. Kelston Park & Newton Park which are both Grade II* listed. A major consideration will be the setting of a Capability Brown Park, at Kelston Park.

6.6 The site is not in the Cotswold AONB, which was a major factor in allowing B&NES to make the site the preferred option over the South Stoke/Odd Down alternative. The site is mainly in the Landscape Character Area of the Avon Valley with only the three fields near the Roman burial site falling into the adjacent Character Area called the Hinton Blewett and Newton St Loe Plateau Lands (see plan on facing page).

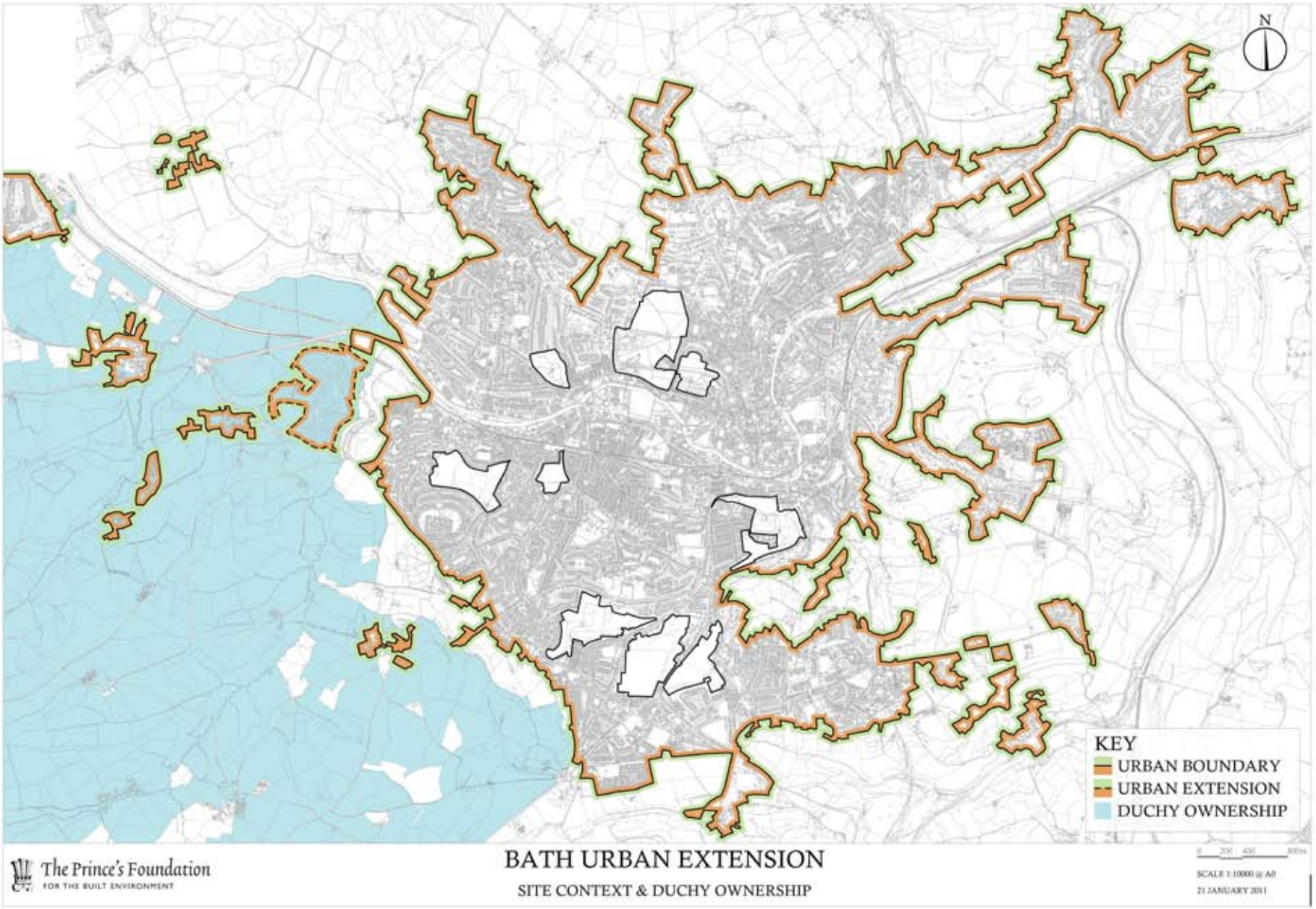
6.7 In 2010 the city boundary covers 29 sq km, (2900ha) - roughly a 6 km (W/E) x 5km (N/S) rectangle. The city has expanded steadily out towards the site - in 1831 the Georgian city was a very compact rectangle - 2.83 sq km in the loop of the river in a municipal area of 3.39 sq km (339ha) with a population density of 112 persons per ha. The population was just 38,063. In 2010 the population has grown to 83,992 and expanded up the Avon Valley towards Bristol Gross densities have fallen to around 42 persons per ha.

Aerial Photo of the site



Site Context Plan

Site footprint in comparison with the Georgian City Extent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SITE CONTEXT & DUCHY OWNERSHIP
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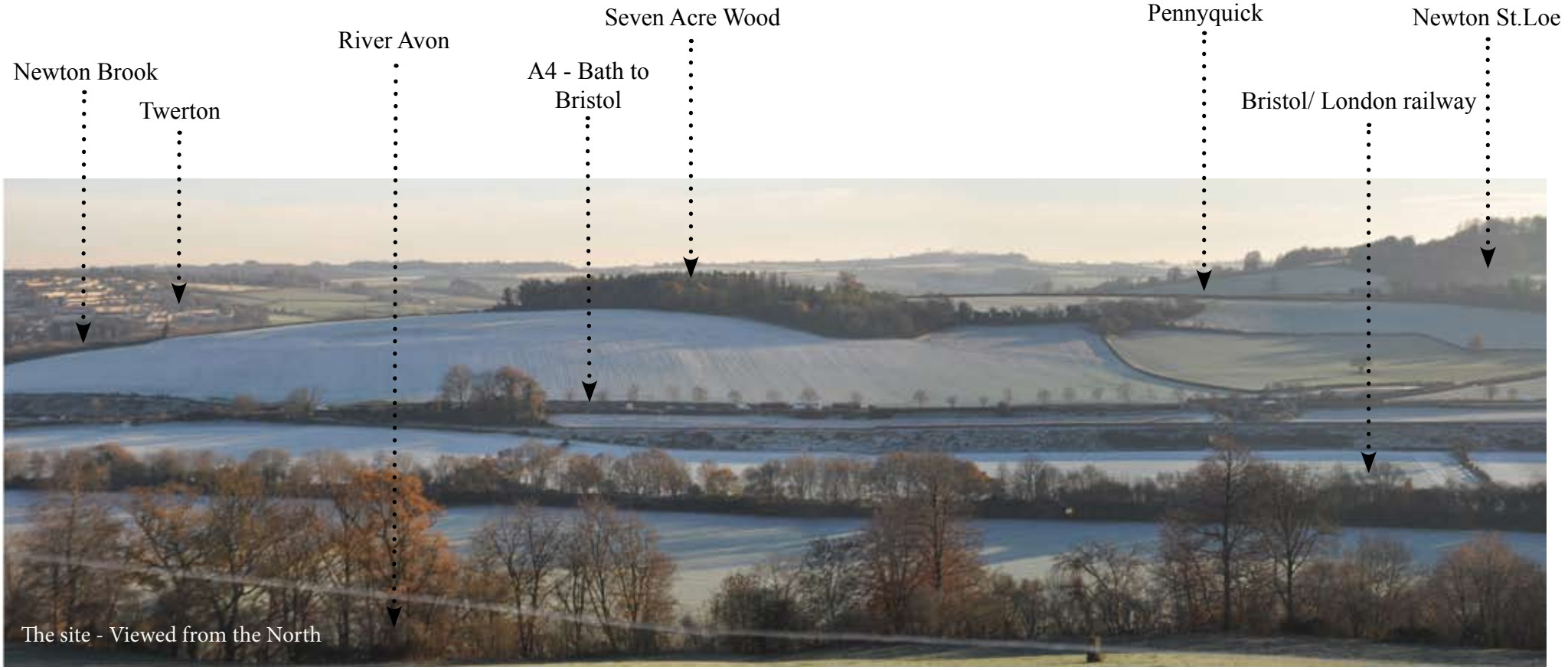
7. Site Analysis

7.1 In order to inform the development of a masterplan for the Bath Urban Extension, the Duchy of Cornwall have commissioned a series of reports to consider both the site and the surrounding landscape in terms of:

- Transport and Movement
- Landscape
- Archaeology
- Ecology
- Drainage
- Energy

7.2 In addition a study was prepared into geology and topography in order to test the assumptions made in an earlier report by ARUP commissioned by Bath & North East Somerset Council.

7.3 Combined, these reports set out the issues and constraints along with the opportunities present for development of the site and are summarised over the following pages.



The site - Viewed from the North

Transport and Movement

SCOPE OF STUDY

7.4 The Duchy of Cornwall commissioned WSP to examine the site context in terms of transport and connectivity, opportunities and constraints. In addition, the sustainability review sets out the potential transport implications of the new development and possible scenarios for development.

7.5 The following reports have been produced to date:

- Transport Constraints and Opportunities - July 2008
- Sustainability Review: Transport Implications - October 2010
- Rail Halt Feasibility Report - January 2011

FINDINGS

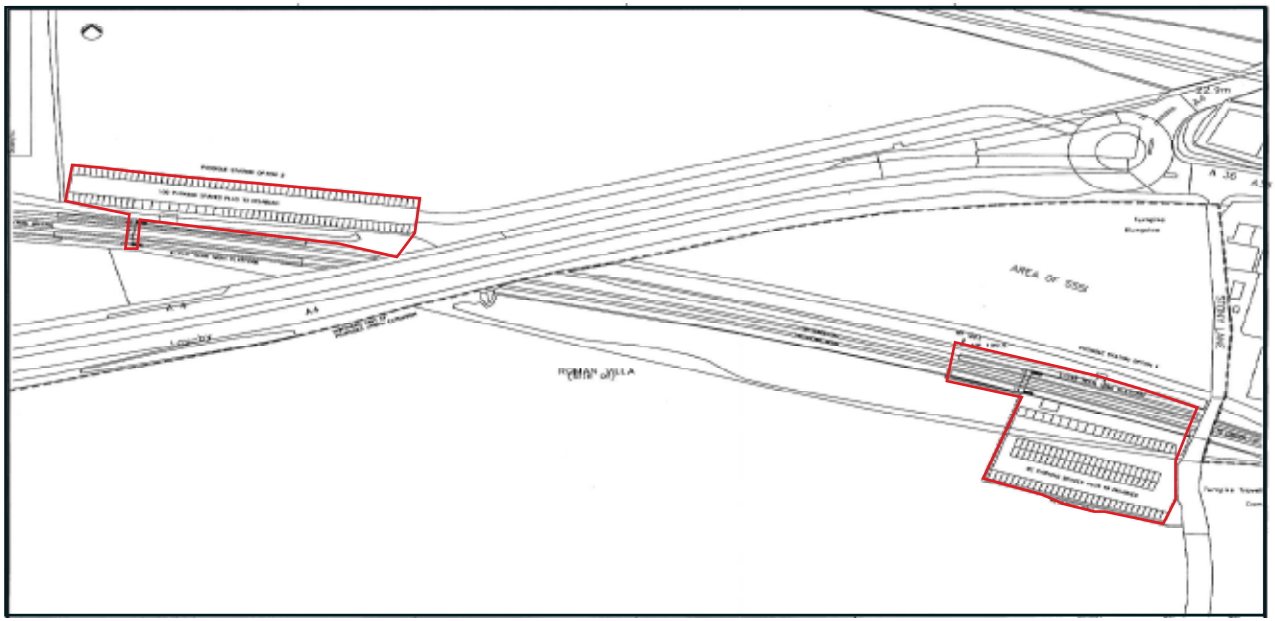
7.6 The site is bordered by two main roads, to the north is the dualed A4 and to the south, Pennyquick which serves the village of Newton St Loe as well as providing a link to the south of Bath. Both of these routes enter the Globe roundabout to the north-west of the site. Initial studies show an average count of around 12,000 vehicles per 12 hour period on each route.

7.7 Public bus routes run along the A4, through neighbouring Twerton and from the Globe roundabout up to Bath Spa University. Newbridge Park and Ride is situated approximately 500m to the north of the site across the River Avon. The Bristol to London railway runs through the River Avon valley to the north, crossing the site in the north eastern corner. There is therefore the potential for a new rail halt with two possible locations identified in initial studies as indicated on the plan.

7.8 There are a number of existing Public Rights of Way that cross the site and a number of tunnels underneath the railway that allow access to the river valley and potentially to the Bristol and Bath cycle path to the north. The site's position on the southern slope of the Avon valley means that gradients are significant in places with potential impacts on traffic, pedestrian and cycle access.

Road	Count	Two way flow		
		12 hour	AM Peak	PM Peak
Lower Bristol Road	One day manual Count (2006)	11,544	1,132	1,217
Pennyquick	5-day average from 7 day count (2008)	12,346	1,345	1,319

Average traffic flow counts around the site



Two options for a proposed rail halt

Landscape

SCOPE OF STUDY

7.9 The Duchy of Cornwall commissioned a landscape appraisal of the site to better understand its intrinsic character and the opportunities and constraints that it might offer.

7.10 The study concentrates on the area around the BUE site drawing on site visits made during 2009 and 2010. Particular attention has been given to topography, land use and perceived sensory values. The appraisal included work on both inward and outward views, as well as key views from heritage locations. A desk based study has augmented the site work examining the implications of statutory and other landscape designations. It is not intended to provide a comprehensive assessment of the historic features of the site, but build an understanding of the landscape that takes account of this history as it is manifest in the landscape today.

7.11 The following reports have been produced to date:

- Landscape Appraisal - December 2010

FINDINGS

7.12 The Landscape Appraisal identifies a range of statutory and local designations in relation to the site. The site itself is within the designated Bath-Bristol Greenbelt. Other important (but adjacent) designations to be considered in relation to any development proposals include Cotswold AONB, World Heritage Site, Newton St. Loe Conservation Area and historic parks (Kelston Park and Newton Park).

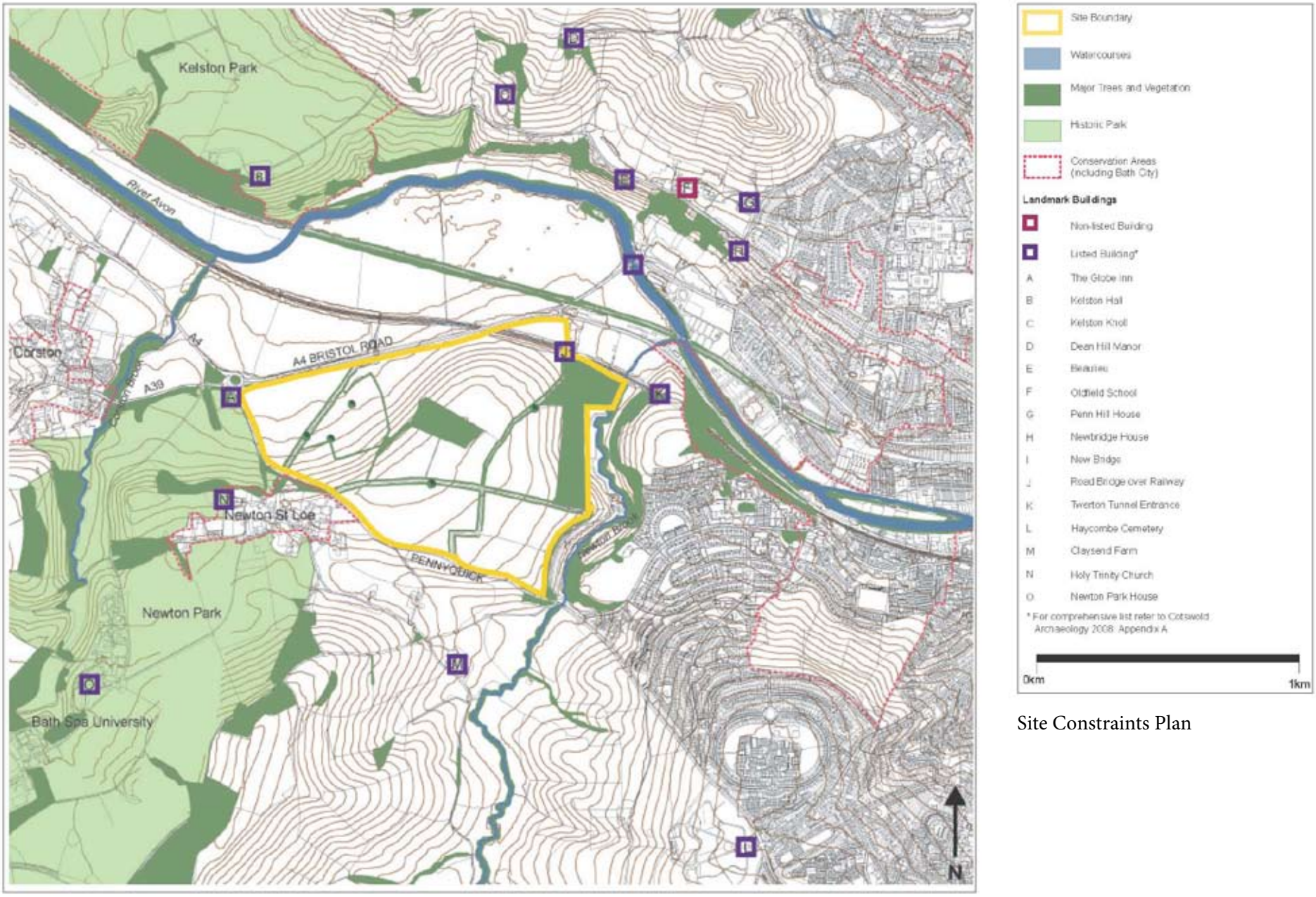
7.13 The site is highly visible from roads and other view points and development of the site can be anticipated to influence the entry/exit experience to Bath from the west.

7.14 Building heights will be a critical issue in terms of positioning and relationship to landform, view cones and landscaping. The alignment of the development in relation to the A4 road corridor also needs careful consideration. The creation of a ribbon development in this location would not sit well in relation to the generally open views that are currently available in this part of the Avon Valley. A setting back of the development edge would contribute positively in mitigating impact on the Cotswold AONB and views from Kelston Park. It will also create an opportunity to reinstate some former historic field boundaries with particular relevance to Kelston Park's 'borrowed' landscape views (much eroded by the GWR and LMS railway companies in the middle of the 19th Century). The conversion of land from arable to pasture/grassland in these areas will improve opportunities for wildlife.

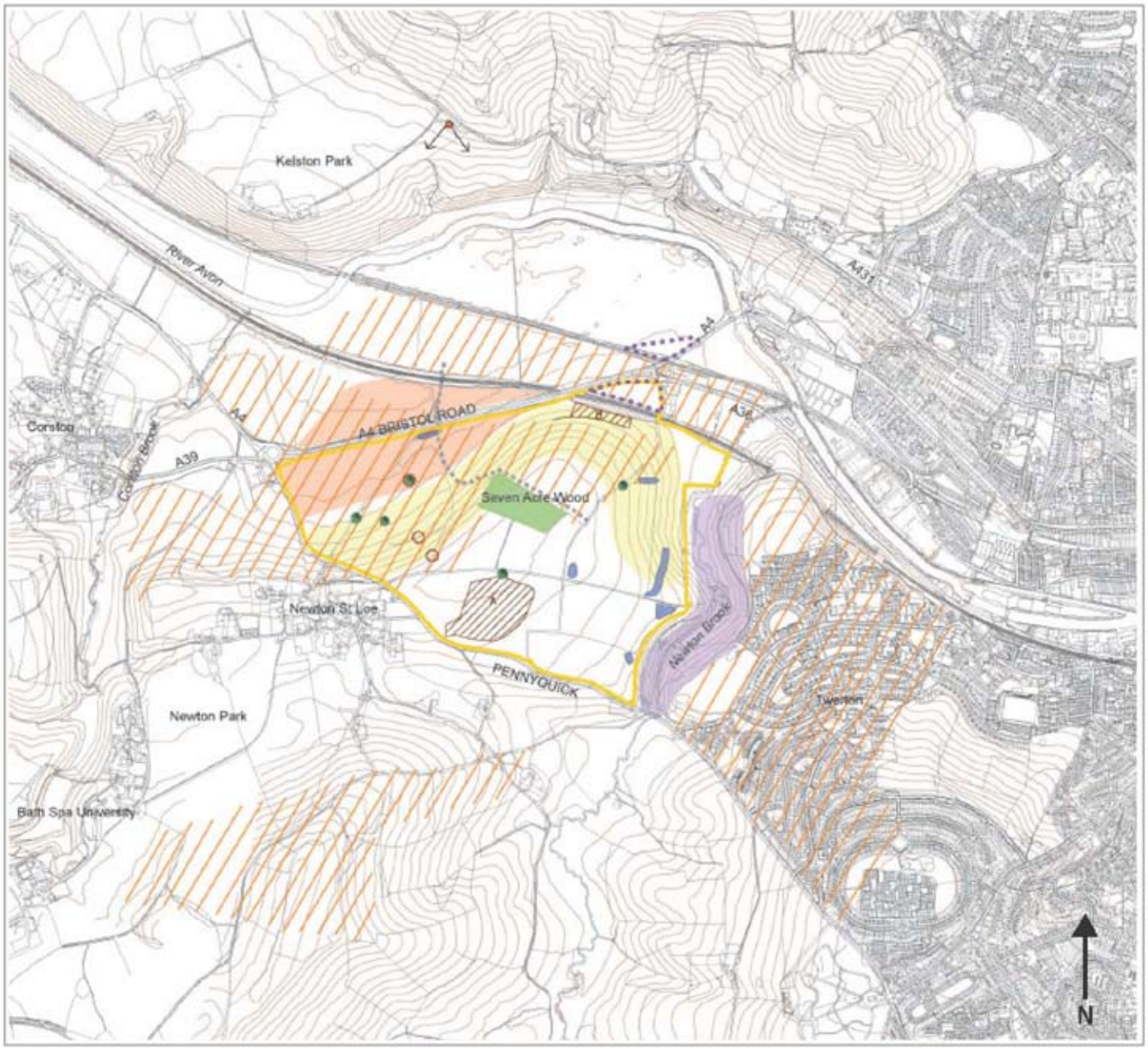
7.15 There is a significant opportunity to respond to the sloping topography in a manner reminiscent of the Georgian city. This will allow for the creation of a varied townscape capturing many incidental inward and outward views. Through good architectural design and landscaping, the development could be expected to reduce the visual impact of Twerton as it is currently viewed from Bristol and the A4. However, it is considered desirable that the development should maintain the perception of undeveloped hill tops on key views, and that appropriate mitigation measures are taken to ensure that rooflines do not create a solid mass upon the skyline but are broken and softened through the careful alignment of buildings and planting of trees. Seven Acre Wood will play an important role in this integration of built and natural form.

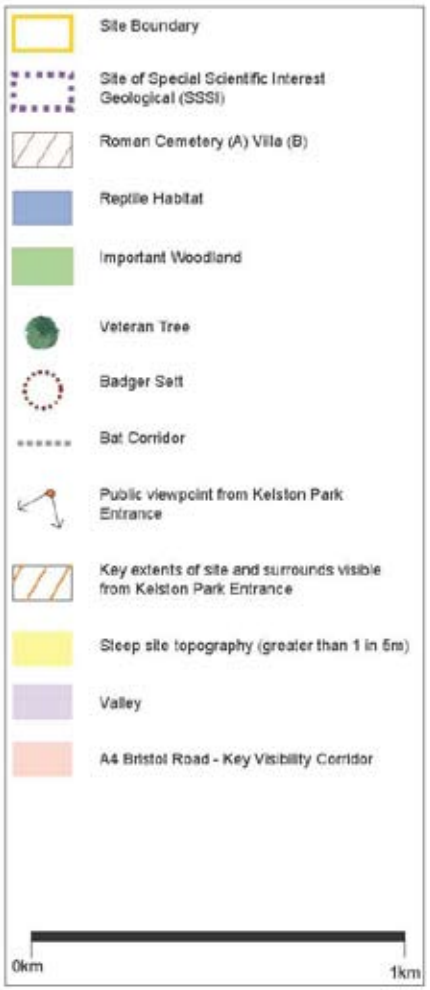
7.16 Inward views from heritage viewpoints within the City such as Sham Castle, Lansdown Crescent & Alexandra Park need careful consideration, although these are long distant views in which the site forms only a small component of a wider scene. Again it will be important to establish an intricate relationship between the built form and natural elements, most especially trees.

7.17 Further potential for tree planting in the fields (off site) to the north of the A4 may also be considered to provide some strategic landscaping as a buffer between Bath and Bristol. This would contribute positively in the reinstatement of historic levels of tree cover in the area and have associated benefits for biodiversity. Willow planting and biomass schemes may be economically viable and suited to the conditions.



Site Constraints Plan





Landscape Constraints Plan

Ecology

SCOPE OF STUDY

7.18 In order to inform the development of the preferred Bath Urban Extension (BUE) site to the west of the village of Twerton, RPS were commissioned by the Duchy of Cornwall to complete a suite of targeted ecology surveys. These were completed between March and September 2010 and covered the BUE site, along with Newton Brook.

7.19 The following reports have been produced to date:

- Phase 1 Habitat and Hedgerow survey - May 2010
- Bat activity survey - May to September 2010
- Breeding bird survey - April to June 2010
- Newton Brook Crayfish and Bullhead survey - August 2010
- Dormouse survey - May to September 2010
- Reptile survey - May to August 2010
- Invertebrate scoping survey - September 2010
- Water Vole survey - April 2010
- Otter survey - April 2010
- Badger survey - April 2010

FINDINGS

7.20 The site is of limited ecological value and comprised mainly of agricultural fields with areas of ruderal habitat around field headlands with hedgerow field boundaries recorded on an estate field plan of 1789.

7.21 The principle finding of the surveys were the presence of ten species of bat using the site, including the Lesser Horseshoe and Leisler's Bats and (very rarely) the Greater Horseshoe, making the site of regional importance for bats. Woodland edges (particularly the northern/ western side of the seven acre wood) and hedgerows across the site are particularly important. However, no bat roosts were identified across the site.

7.22 The site is over 5 km from any European Designated Site (including those designated for the presence of bats). Therefore, the Habitats Regulations Assessment of the previous version of the B&NES Core Strategy did not identify any likely significant effects on European Designated Sites.

7.23 The Newton St Loe SSSI on the northern edge of the site should be retained and Newton Brook, which is an important ecological resource will require protection during any future development with the avoidance of additional discharge of surface water from the site.

Newton Brook is an important wildlife corridor

Archaeology

SCOPE OF STUDY

7.24 Several phases of assessment have been undertaken to better understand the likely archaeological constraints and opportunities. Following the initial desk-based assessment, field evaluations were undertaken to enhance our understanding on the potential existence or nature of buried archaeological remains on the site. These field evaluations include several phases of geophysical survey employing magnetic susceptibility and fluxgate gradiometer techniques. The geophysical surveys identified potential areas and foci of buried archaeological remains and these were further examined through the excavation of trial trenches. All of the assessment and survey work carried out to date has been to specifications approved by B&NES.

7.25 The following reports have been produced to date:

- Archaeological desk based study - July 2008
- Geophysical survey [magnetic susceptibility and fluxgate gradiometer] - January 2010
- Archaeological evaluation [trial trenches] - December 2010
- Geophysical survey [further fluxgate gradiometer survey and update] - January 2011

FINDINGS

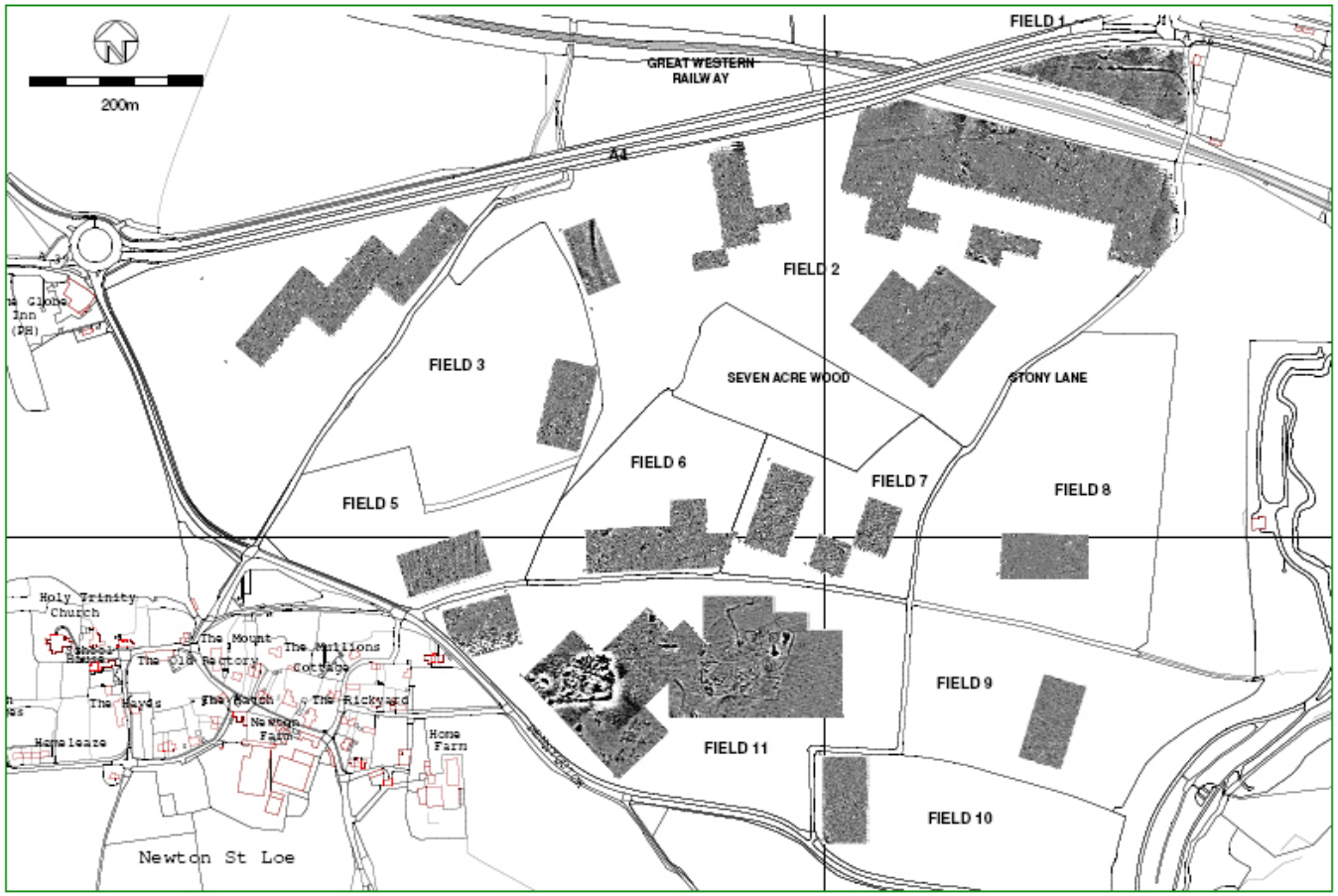
7.26 Geographical surveys have unearthed three key areas of constraint within the development zone:

Newton St Loe Roman Villa

7.27 Discovered during excavations for the railway cutting in 1837 and dating back to between the 3rd to 4th century and one of c.40 late Roman villas known to be located within 16km of Bath. Geophysical surveys reveal surviving fragments of buildings and ditches, in the main extending to the north of the development site.

Prehistoric/ Romano-British settlement activity

7.28 To the south of the cemetery, the geophysical survey has identified an area of potentially late prehistoric settlement enclosed by ditches whilst a number of earlier finds indicate late Bronze to late Iron Age materials. The presence of Romano British pottery in the upper fills suggests continued use into the 2nd century AD and therefore suggests a continuation of activity from Neolithic to the Roman period.



Gradiometer Survey

Drainage

SCOPE OF STUDY

7.29 An initial review of water related issues was carried out in 2008. The purpose of this work is to review the sustainability issues related to water and to identify any areas that cut across other topics. Broad topic areas investigated are flooding and surface water drainage, water use, wastewater treatment and water quality, and other items relating to the water environment.

7.30 The following reports have been produced to date:

- Bath Urban Extension Water Strategy - July 2008
- Water, flooding and drainage - July 2010

FINDINGS

7.31 The development area to the south of the A4 is not within the flood zone and is therefore suitable for any development.

7.32 The run-off from the development will need to be reduced to existing greenfield runoff rates through the use of sustainable drainage measures which may include infiltration, storage and re-use. The use of infiltration is preferred in the SuDS hierarchy but is dependent on both the permeability of the soils and the gradient of the land. The permeability varies across the site and further tests need to be carried out to determine infiltration rates and the combination of infiltration and conventional surface storage required for this site.

7.33 There are options to drain the foul water to existing sewers to the north and east of the proposed development. Further discussions with Wessex Water will be required to determine the optimum solution.

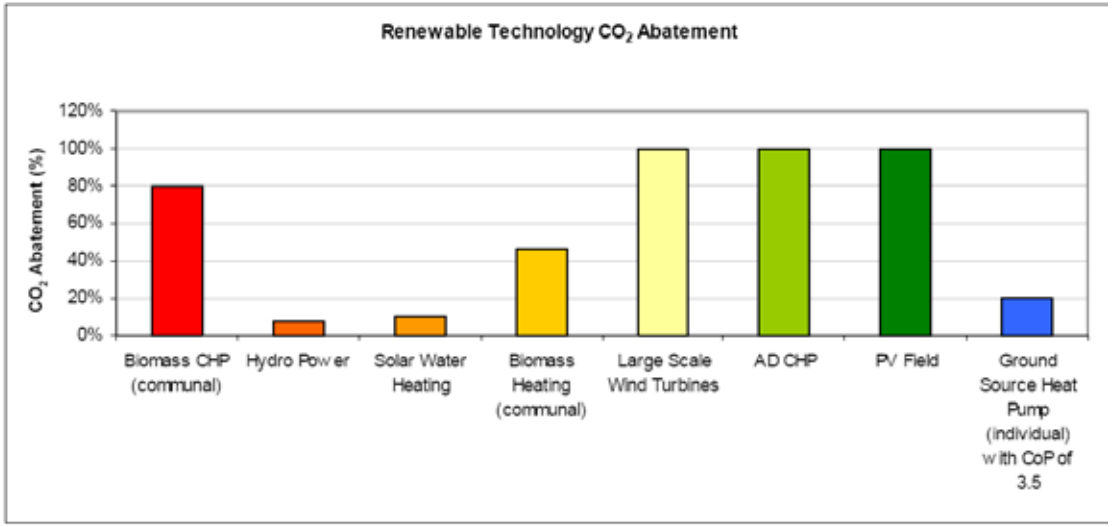
Energy

SCOPE OF STUDY

7.34 Camco were appointed by the Duchy of Cornwall to undertake a Sustainable Energy Assessment for the Bath Urban Extension. The assessment report describes how this site could meet the Duchy of Cornwall's sustainability principles and the vision for a zero carbon development through the use of on and off-site measures utilising the Duchy of Cornwall's experience and research on low carbon building construction practices and the renewable energy resources of the Duchy-owned hinterland. The Sustainable Energy Strategy sits under an overarching Sustainable Strategy for the Urban Extension, together with the Sustainable Transport and Food Assessments.

7.35 The assessment deals with both the carbon dioxide (CO_2) emissions resulting from energy use in buildings, and embodied energy in building materials. Options for reducing energy demand, using renewable energy and supplying energy efficiently have been investigated, with a remit that such initiatives will endeavour to:

- provide additional benefit to the surrounding community and area
- tie in to B&NES' sustainability initiatives on waste, biomass, sustainable energy and climate change
- facilitate low carbon lifestyles and community involvement
- address current market failures such as poor delivery of renewable electricity and ensure that management structures are put in place to allow energy systems to operate over the long term.



Potential CO2 reductions from different technologies

7.36 At this early stage the options are necessarily high level and in due course, should the Urban Extension progress at this location, further detailed feasibility work would be conducted for the energy options prior to arriving at a final energy strategy.

7.37 The following reports have been produced to date:

- Sustainable Energy Opportunity and Constraints Assessment - July 2008
- Food Opportunities and Constraints Assessment - July 2008
- Sustainable Energy Assessment - August 2010

FINDINGS

7.38 Studies into an energy strategy for the development site have focused on the three key areas of reducing energy demand through influencing peoples behaviour, reducing demand through improving efficiency of buildings, transport etc, and supplying energy more efficiently such as through using renewable energy with the aim of providing additional benefit to the surrounding area, facilitating low carbon lifestyles and the preferred strategy of delivering a zero carbon development.

Reducing demand through influencing behaviour:

7.39 The masterplan needs to be developed on the principles of walkable neighbourhoods and allowing for people to reduce numbers of car journeys and to meet their lifestyle needs locally. This could be done through the provision of employment and local amenities, thus reducing the need for energy for transport.

7.40 Public transport is also a key consideration for reducing transport related emissions and there is potential for both bus and rail provision on site. A plan that accommodates and encourages pedestrian and cycle links to Bath and external public transport routes will also help to reduce trip generation and although parts of the site are steep, the presence of the Bristol Bath Railway Path provides an opportunity for linkages.

7.41 Local food production, distribution and purchase could be facilitated through a sustainable food strategy reducing food miles and therefore energy demand.

Improve efficiency of buildings and equipment:

7.42 An integrated strategy to monitor and sub-meter energy consumption in the entire development in order to facilitate energy management could help to reduce carbon emissions on site by up to 15% through efficiency measures.

7.43 Opportunities exist for the masterplan to provide for good solar orientation, access and daylight as well as and creating natural ventilation for commercial uses.

7.44 Whilst there are no existing buildings on site, there may be opportunities to improve the efficiency of buildings within neighbouring developments through retrofit grant schemes.

Supply through renewable sources or as low carbon source as possible:

7.45 Studies revealed that wind power presents the greatest opportunity for achieving 100% CO_2 reductions through the provision of two wind turbines. However, concerns over the visual impact on the world heritage site have dictated that a mixture of on and off-site technologies would be required to reduce emissions and could result in savings of approximately 55% of total emissions. Potential sources include the use of the hinterland to provide a variety of solutions such as wind and hydro power whilst the on-site provision of communal Combined Heat Power could link into the Core Strategy's priority area for district heating at neighbouring Twerton. There may also be the opportunity for Photo Voltaic roof mounted systems to parts of any development depending on roof direction and visual impact issues.

Geology and Topography

SCOPE OF WORK

7.46 Buro Happold was commissioned by the Duchy of Cornwall to review findings given by Arup in their report 'Scope, Geological Instability and Undermining Study – Bath Urban Extension Development' which specifically addresses the area West of Twerton. Their report addresses the conclusions drawn by Arup which indicates approximately 50% of the land area to be unsuitable for development. These issues were also considered within a report produced by RPS in relation to ground conditions and contamination.

7.47 The following reports have been produced to date:

- Review of Arup Instability Report - January 2011
- Ground Constraints Report - June 2008

FINDINGS

7.48 The Buro Happold report states, contrary to the interpretation of the site by Arup, that most of the land west of Twerton is suitable for development although conditions that limit the extent of any development work include:

- Steeply sloping ground in the vicinity of Newton Brook
- The railway cutting

7.49 As the ground does have significant slopes to the north, west and east of the site, cut and fill to form terraces may prove beneficial for any development. The upper metre of the Mercia Mudstone may be too weathered, and consequently too wet, for subsequent use as engineered fill.

7.50 To form relatively steep cuts in the mudstones it would be advisable to protect the faces using geofabrics, potentially nailed and seeded to allow growth of vegetation. At the top, and/ or base, of these cuts drains should be installed to control water on the face of the cuts, prevent uncontrolled water flow across the site, and

prevent ponding on any man made terraces. Where cuts expose limestone bands at the surface, it would be advisable to follow recommendations for cuts in mudstone, but with the addition of a geotextile drainage layer adjacent to the face. The water can then be collected at the base of the cut, and removed along predetermined/ constructed drainage channels.

7.51 For foundations, for low rise housing developments, it is anticipated much of the work will consist of pads or strips placed on limestone or mudstone horizons. Locally, trench fill may be necessary in areas of terraces formed by compacted soils, or where mudstone has weathered to several metres depth.

Buildings in Bath demonstrate an historic ability to build on slopes

8. Masterplan

8.1 The illustrative masterplan (shown on facing page) responds to the site constraints and works with the landscape and topography to enhance the urban edge of Bath and provide a clearer definition between town and country.

8.2 The urban layout is created by the re-routing of Pennyquick (1), diverting traffic through the new development in order to create activity in a new neighbourhood centre. North-south movement is created by the provision of a new key link to Bath Spa University (2) that will provide a bus link between City Centre and the campus. A new pedestrian/ cycle link would connect the site with Twerton to the east in order to enable sharing of resources and services. The masterplan shows two potential alternative locations for this link (3).

8.3 A clear street network that creates a legible urban environment and enables all new homes to be within a 450m radius (five minutes walk) of the neighbourhood centre.

8.4 The potential provision of a new railway halt (4) that could provide non-car based connectivity with Bath and Bristol.

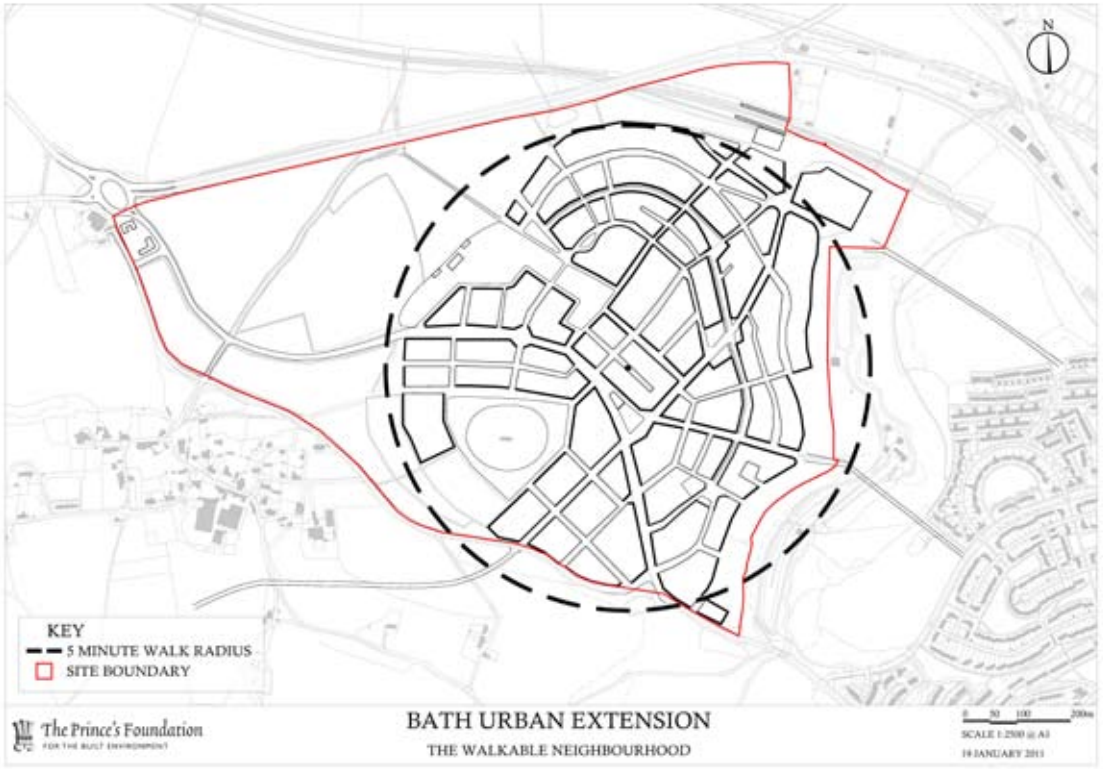
8.5 The masterplan provides flexible mixed-use units offering space for shops and other local facilities located on the main square at the heart of the new neighbourhood. Approximately 4ha of commercial space are located throughout the site but centred around the potential new railway halt at the northern end of the site (5).

8.5 The provision of up to 2000 dwellings in a high quality urban environment with a commitment to provide one job per household on-site.

8.6 The potential for a new primary school (6) and community facilities including an energy centre (7) that will provide both Twerton and the new development with a sustainable energy solution.

Well overlooked public spaces including a 4ha playing field (8) which could include a cricket pitch and formal parking spaces for the neighbourhood centre. This major new open space that takes account of archaeological constraints could also provide allotments and a new community orchard. Links through to the Duchy's wider landholdings provide an opportunity for the site to develop as a local food hub centred on a new farm shop (9) at the entrance to the site from the Globe roundabout. This would provide a reliable market for local food growers and producers.

8.7 Key landscape features such as woodland edges and historic hedgerows are retained or renewed throughout the development. The addition of green corridors and Sustainable Urban Drainage systems provide a viable solution to the management of water, ecological pathways and safe and pleasant cycle and pedestrian links to the surrounding countryside.

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9. Site Deliverability Movement

A New Walkable Neighbourhood and Mixed Use

9.1 The proposed development is structured around a walkable neighbourhood where the central square and main facilities (1) are located within a five minute walk (approximately 450 metres radius) from all those who will live here. The new residential streets and strategic connections to and through the site lead easily to this new centre.

9.2 The proposed development would be mixed use with a provision for around one job per household. This mix of uses will help with the internalisation of trips and increase the number of trips being made by walking and cycling. This will in turn help reduce the number of vehicular journeys to and from the site on the surrounding road network.

9.3 The diversion of Pennyquick traffic into the site through a new square will bring life to this area and vitality to the shops and businesses. The existing Pennyquick traffic (2) will be calmed through the development to around 20mph with the ability for people to stop and shop and use the facilities which will help with the vibrancy and success of the centre. Traffic is currently running adjacent to Newton St Loe and this diversion will help reduce the impact of traffic and noise for the village residents.

The Movement Framework and Street Hierarchy

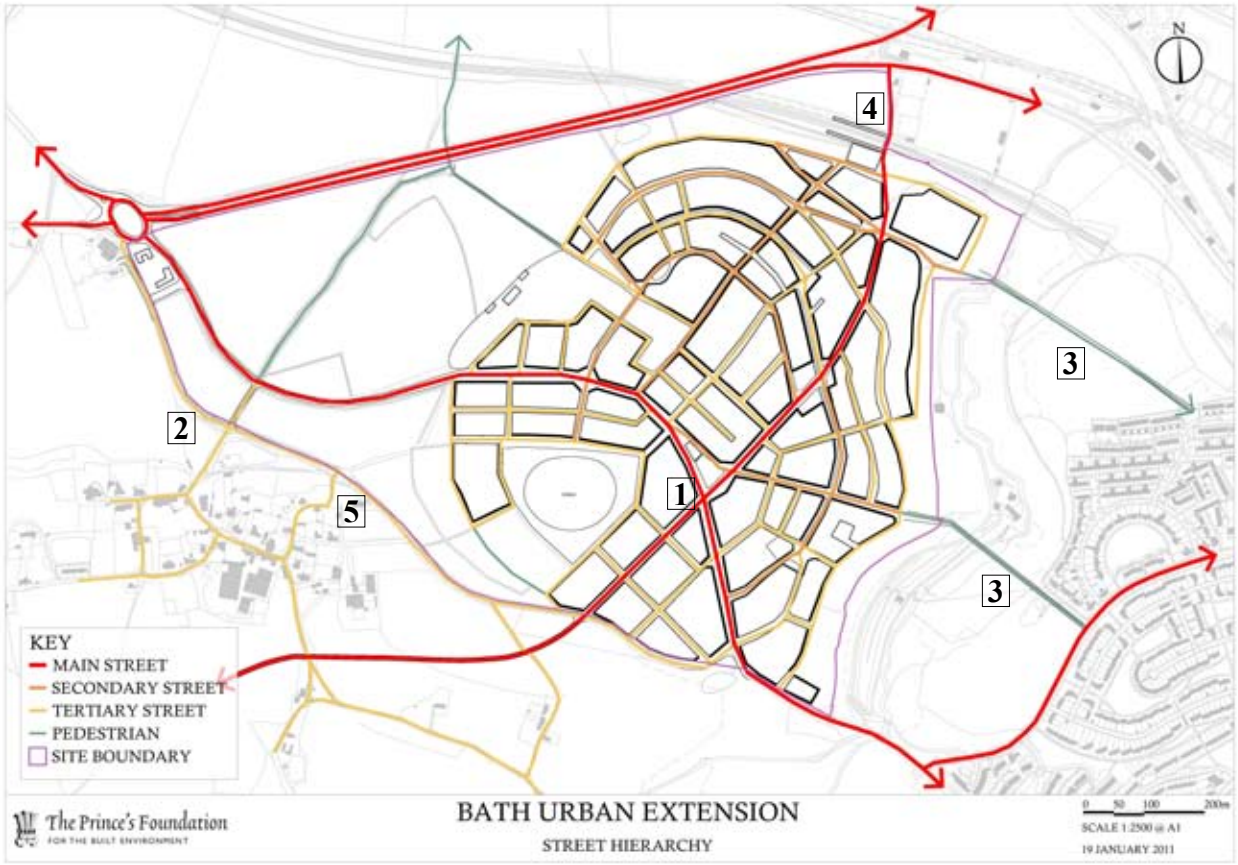
9.4 A concept movement framework and street hierarchy has been established to help give legibility to the development and to structure the development in terms of street types, landscaping, building heights and mixed use. Streets will be designed at a human scale with the pedestrian and quality of streetscape as the priority. Traffic speeds will be designed to be 20mph or less.

Connections to Twerton, Bath and Newton St Loe

9.5 Twerton – good links with Pennyquick and a new pedestrian / cycle bridge over the Newton Brook in one of two possible locations(3).

9.6 Bath – public transport connection along A4, Newbridge Road and Lower Bristol Road. Potential for a new rail halt (4) that would also serve Bristol and intermediate stations. Connection to the Bath-Bristol cycle route, providing a level route to Bath city centre.

9.7 Newton St Loe – vehicular, pedestrian and cycle connections along existing lanes (5).



Public Transport

9.8 Existing bus services on the A4 Bristol Road should be able to route through the development and stop in the new centre. From the east (1) they could access Stony Lane and travel up to the square and then heading west will either rejoin the A4 at the Globe roundabout (2) or use a new direct link to Bath Spa University. This new link (3) is proposed to provide a more direct connection to the development and Bath and the park and ride site beyond.

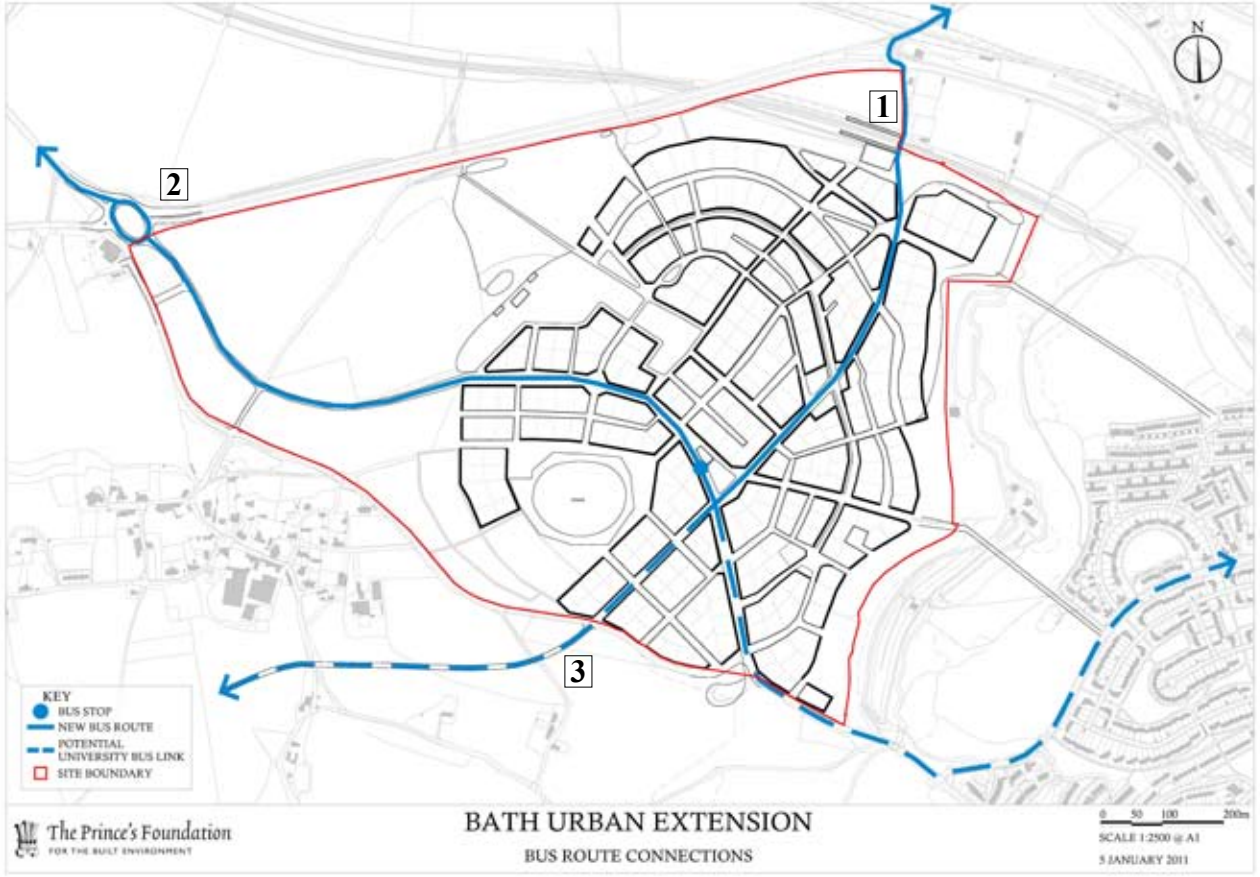
9.9 The Stony Lane connection could be solely for use as a public transport and for walking and cycling to provide a direct route to the A4, Newbridge park and ride and Bath. The existing bridge is approximately 4 metres wide which could potentially accommodate a single working for buses and a pedestrian / cycle path.

9.10 There is the potential for a new rail halt on the northern edge of the site which would serve connections to Bristol and Bath and beyond. An initial study has indicated that a halt at this location is feasible. Direct walking and cycling routes would be made to the rail halt along with the provision for mixed use and commercial premises in the station area.

Vehicular connections and car ownership

9.11 A new connection will be provided from the west from the A4 Globe roundabout. This junction may need to be expanded and remodelled to allow for this and to increase capacity. A new 'country lane' would run up to the development. Pennyquick will have the opportunity to be 'upgraded' in terms of it becoming a much quieter route as the route will be transferred through the development site at both ends.

9.12 The development will aim to limit car parking for residents through the sustainable travel connections (walking, cycling and public transport). An appropriate level of car ownership could be enforced through the governance of the site by The Duchy of Cornwall. High quality and high capacity public transport and good walking and cycling connections will provide alternative choices along with a comprehensive car club, Travel Plan and green concierge service provided through the Duchy of Cornwall.



Walking and Cycling

9.13 The proposed development has been structured around the walkable neighbourhood principle to encourage more walking and cycling trips to the new centre.

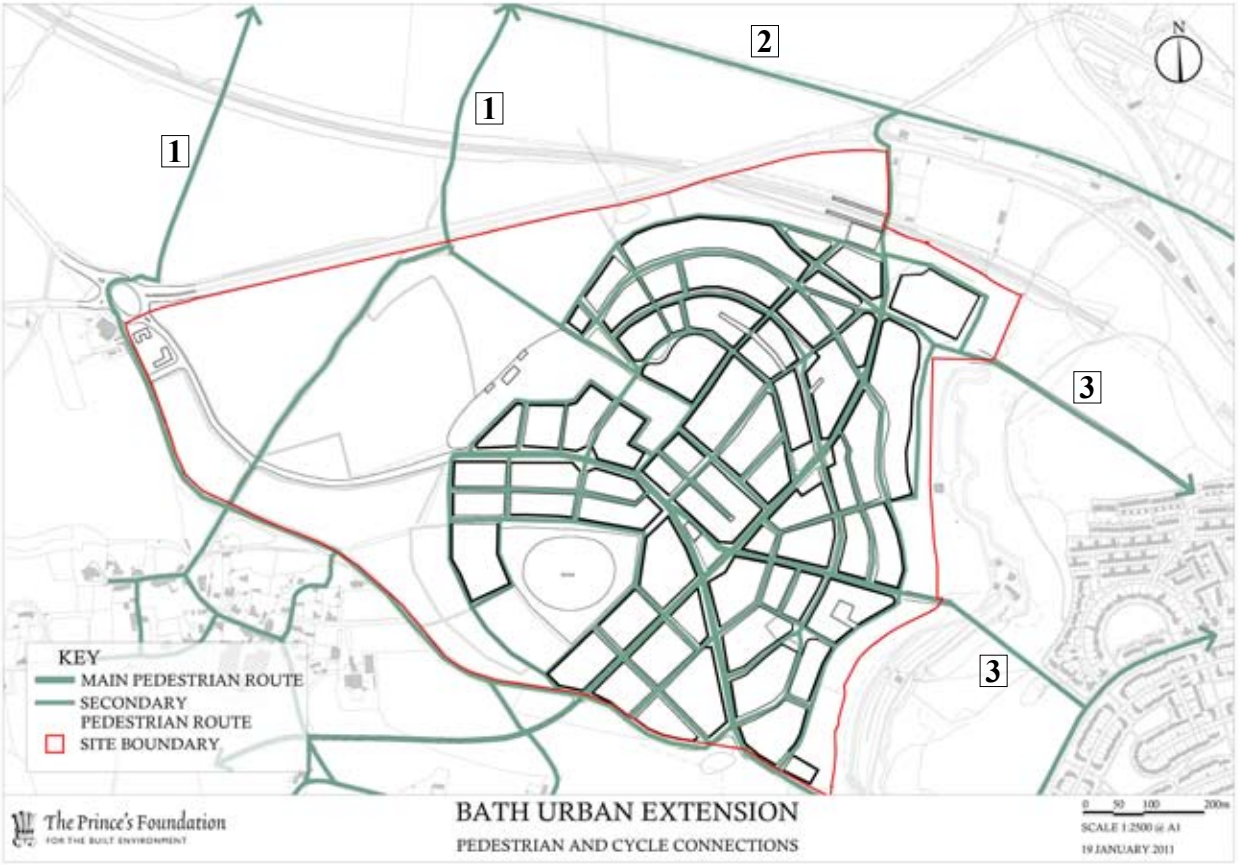
9.14 Existing public rights of way (PROW) will either be retained or realigned within the masterplan. The existing underpasses under the A4 (1) and mainline railway will be maintained and additional pedestrian cycle connections will be made to them. Additional connections to the River Avon and the Sustrans Bath to Bristol (2) cycling and walking route will also be made.

9.15 Walking and cycling routes to Twerton will be encouraged through the construction of a new bridge over the Newton Brook in one of two potential locations (3). Consultation with the residents of Twerton will be undertaken to determine the best location for this potential new connection.

9.16 Walking and cycling routes to and from Newton St Loe will be discussed with the local residents of Newton St Loe to determine whether they may need to be upgraded or whether they should remain as they are to keep them within the character of the village.

Building on slopes and Disability Discrimination Act (DDA)

9.17 Several streets within the development may run directly down the slopes to create direct routes with stepped terraces which are in keeping with the character of many Bath streets. Alternative routes will also be provided at shallower gradients, aiming for a 1 in 20 slope to help those who may be less able or with pushchairs, wheelchairs etc.



The A4 Bath to Bristol Road borders the North of the site

Ecology

9.18 The Masterplan seeks to respond to the findings of surveys taken throughout 2010 while simultaneously delivering an overall enhancement to biodiversity by:

- Retaining the main bat commuting and foraging hedgerows/ woodland
- Retaining the identified badger setts
- Retaining much of the existing hedgerow network within new Green Infrastructure
- Avoiding impacts to Newton Brook through the implementation of Sustainable Drainage Systems (SuDS) to ensure run-off is no greater than the existing greenfield rate as well as providing a woodland buffer between the brook valley and built development
- Retaining most of Seven Acre Wood, especially areas where more mature trees are present, including sites where Bath Asparagus has been identified
- Avoiding impacts to Skylark by providing pasture rather than arable fields within the redline boundary. Although smaller in total area, these will be managed to ensure the correct sward height at the correct time of year to support the breeding requirements of Skylark and will therefore be of higher quality than the current winter-sown arable fields

9.19 The plan delivers substantial biodiversity enhancement across the site via the provision of extensive Green Infrastructure (GI). Ecological permeability is maintained through significant green corridors, carrying the SuDS, facilitating dispersal of biodiversity across and around the site and linking in to further enhancement of Duchy-owned land within the surrounding hinterland.

9.20 Particular attention has been given to ensuring the site can maintain and enhance the existing bat population. This has been achieved by strengthening retained hedgerows, reverting from intensive arable to organic pasture over a substantial area of the site (as well as within the hinterland), new water features from SuDS - including on the main flight lines, new woodland/orchard planting and strengthening of the corridor along Newton Brook.

9.21 The GI provides dark corridors within and around the development, including taking advantage of existing land contours so that bats can use the naturally dark space below the line of housing on the northern edge of the Masterplan. Roosting opportunities will be created on site (none exist at present), including a substantial bat loft within the building to the north of Seven Acre Wood, designed to accommodate Horseshoe Bats, and the extensive provision of bat boxes/ bricks within the final scheme in appropriate locations. All lighting within the development would be designed in a sensitive manner such that dark corridors were maintained and the impact on bats minimised. This would include the careful design of the building to the north of Seven Acre Wood and its setting.

9.22 The Masterplan provides extensive new reptile, amphibian and invertebrate habitat on field margins (at least a 1m buffer of rough grass adjacent to each hedgerow maintained around all fields), within-hedgerow glades and with the SuDS scheme. The reversion from arable to pastoral farming will also deliver enhanced Badger foraging habitat in the area surrounding the existing setts.

9.23 The Newton St Loe SSSI will be retained under pasture while Newton Brook is being protected through buffer planting along the eastern edge of the development.

Drainage

9.24 The masterplan places all of the residential development outside of the floodplain in flood zone 1, therefore responding to both National and Local planning policy. The proposed rail halt will be the closest part of the development to the floodplain of the River Avon. By placing the halt at the most easterly location possible within the existing cutting it is sequentially at the lowest risk possible and is also likely to have the minimum impact on the floodplain. This location would thus stand up to the sequential approach set out in PPS 25.

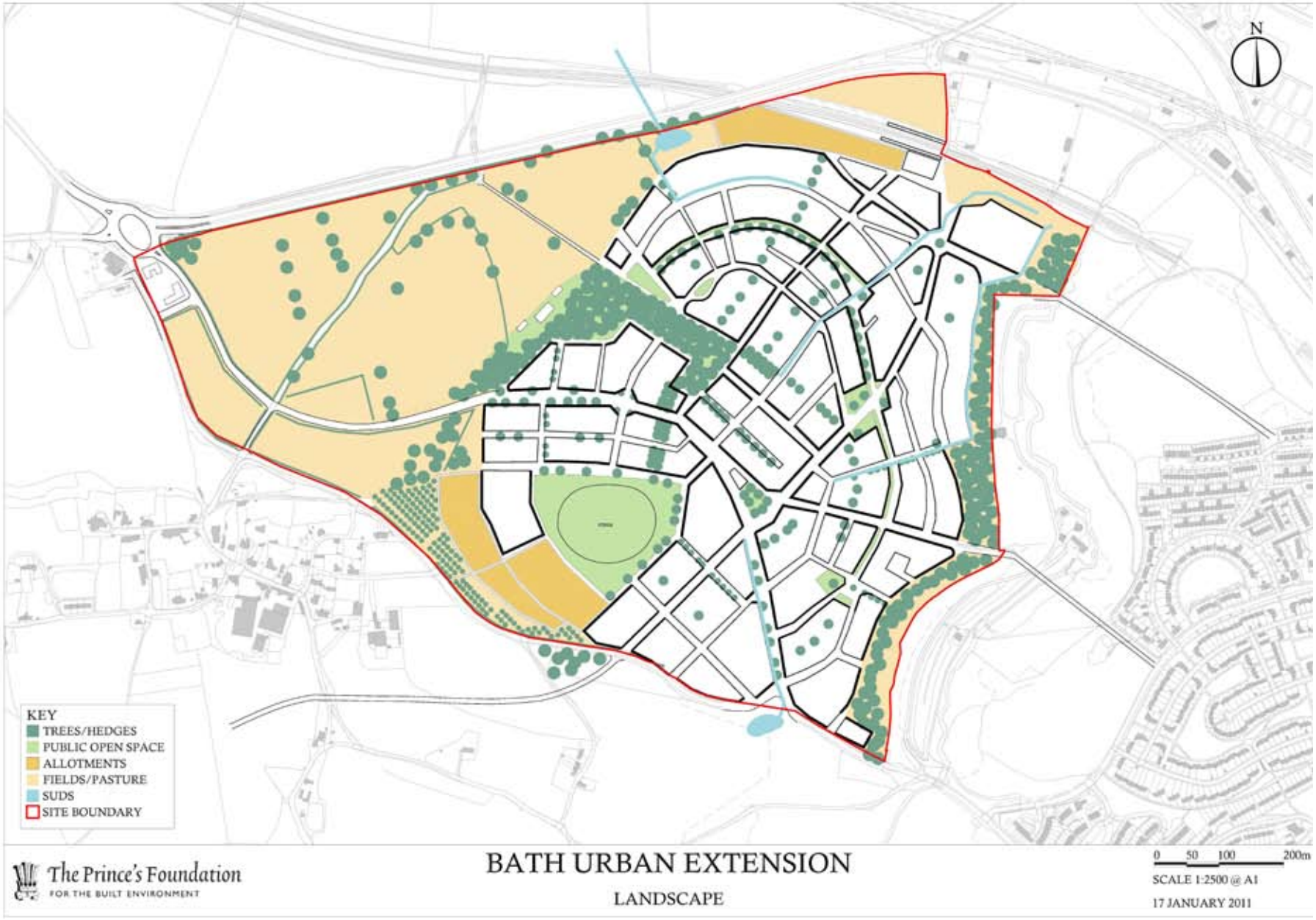
9.25 The masterplan adopts a combined strategy for the sustainable management of surface water run-off by using rainwater harvesting at a plot level. This will help to reduce both the volume and rate of run off (and reduce the demand for potable water). The masterplan also promotes the use of an urban Sustainable Drainage scheme to manage the overall run off from the site. The final stage is a system of storage ponds around the edge of the development which provide additional attenuation of flows but also contribute to biodiversity enhancements.

9.26 Within the measures above there is a preference for infiltration measures. This potential will ultimately need to be determined through intrusive ground investigation but a desktop overview has highlighted the potential for infiltration to the south of the site with areas to the north being less permeable. In all considerations relating to infiltration to groundwater the potential impacts on slope stability will need to be evaluated.

9.27 The location of the proposed masterplan area and the availability of land nearby ensure that the requirements for surface water management can be met on this site.

9.28 With regard to foul drainage the information provided by Wessex Water confirms the availability of sewers to the north and north east which would be able to cater for the additional discharge of foul water from the site. Further discussions would be required to identify which would be the preferred route.

9.29 Homes will require a significant reduction in the usage of potable water. To reach Code Level 6 there is a requirement to reduce usage to 80 l/h/day. To achieve this there will need to be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a combination of physical efficiency within the fittings within the home as well as a reduction in demand derived from both behavioural change and water recycling. Rainwater harvesting as part of the surface water drainage strategy will contribute to this under most circumstances but during drought conditions a more reliable source of water will be required and it is therefore likely that some form of greywater recycling will also be utilised.

Archaeology

9.30 The proposed Bath Urban Extension has been designed to respond sensitively to the archaeological resource of the site. Key areas of potential have been identified through desk-based assessment, geophysical survey and trial trenching.

9.31 Remains associated with a Roman villa complex extend into the northern area of the site. The line of the proposed built development does not extend over the area as defined by recent geophysical survey and the excavation of test pits, allowing remains present in this area to be preserved in situ. Likewise, the site of a possible rail halt has been located further to the east in an area where a recently-excavated test pit did not reveal any archaeological remains. The field to the north of the railway, in the angle between Stony Lane and the A4, was also considered to have potential for remains associated with the villa complex following analysis of the results of the geophysical survey. No built development is proposed in this part of the site beyond the railway cutting.

9.32 Recent investigations have also suggested that an area of archaeological remains, including an area of prehistoric and Romano-British activity lies in the south-western area of the site. Land uses in this area have been carefully selected to allow the preservation of the key areas of potential in situ. These include the use of part of this area as allotments and a cricket pitch. It is recognised that some restrictions will have to be placed on the allotments in order to prevent below-topsoil ground disturbance, such as limits on tree planting, the erection of buildings and the excavation of ponds. Likewise the detailed design of the cricket pitch will be formulated to ensure that no disturbance to the archaeological remains takes place through drainage or levelling works. Any traffic routes or areas of car-parking will be constructed in a way that does not impact upon the archaeological resource. Surface treatments such as the use of 'grasscrete' (cellular grassed paving in concrete or plastic) may be implemented.

9.33 Opportunities for access and interpretation will be explored within the proposed development. The area of public open space to the south of the villa will provide an opportunity for on-site information allowing the archaeological resource of this area to be understood by users. The south-western area of the site may also offer opportunities for providing information on the prehistoric and Romano-British remains.

9.34 The majority of the hedgerows present within the site lie along boundaries recorded on an estate map of 1789, and would be considered to be of some historic value by the local authority. The masterplan has sought to retain these hedgerows throughout the development.

Energy

9.35 The masterplan has the potential to meet and exceed both local and national policies relating to sustainable energy and climate change mitigation.

9.36 By concentrating the development within a walkable distance from the centre, carbon emissions from vehicle movements within the development will be minimized with further potential for reduction of transport related carbon emissions achieved by bus and cycle connections to Bath and Bristol and the potential for a nearby rail halt.

9.37 The concentrated form of the masterplan and clustering of higher density housing around the centre and potential rail halt location also increases the viability of a district heating system. This is due to lower distribution costs compared with the same number of dwellings spread over a larger area. By siting the development close to the adjacent community of Twerton, this also opens up the potential for a shared community energy system benefiting both the Bath Urban Extension and Twerton which has been identified as a District Heating Priority Area in the B&NES Draft Core Strategy (Policy CP4).

9.38 The proximity of Twerton to the proposed development also opens up the opportunity for the community of Twerton to benefit from the low carbon construction expertise which would be employed by the Duchy to assist with the retrofitting of energy efficiency and renewable energy measures for nearby housing most in need of this support, as referred to in Policy CP1 of the B&NES Draft Core Strategy.

9.39 The architectural approach of the masterplan, whilst sympathetic to the existing architectural styles of the City of Bath also provides opportunities for solar panels which can be installed at the optimum orientation and pitch and hidden from view from the public realm through the use of valley roof constructions and parapets.

9.40 The location of the development within an extensive Duchy of Cornwall-owned hinterland provides the opportunity for the development to be supplied with renewable fuel sourced from Duchy-owned woodland or farmland, and for stand-alone renewable energy generation, acting to off-set any residual emissions from the development once on-site measures are taken into account.
Taken together, these points suggest that the Bath Urban Exten-

sion development is uniquely placed to meet the full aspirations of B&NES' strategy for 'Responding to a Changing Climate' (Policies CP1-4 of Draft Core Strategy) and the Government's requirement for all new homes to be 'Zero Carbon' from 2016 and non-domestic buildings to achieve this from 2019.

Landscape Principles

9.41 A set of guiding principles have been derived from the Landscape Appraisal Study and are set out below:

9.42 Minimise development along/ within the river corridor

- Protect the open landscape character of the Avon River corridor
- Maintain significant visual separation between the urban settlements of Bristol (Saltford) and Bath (Twerton/ Newbridge)
- The River Avon is not visible from the A4 due to the railway embankments nonetheless the landscape offers broad vistas across arable farmland
- It is noted that the river corridor area is immediately adjacent to the boundary of the Cotswold AONB

9.43 Respect the visual setting of Kelston Park

- Create a 'deferential dialogue' between the built form of the BUE site and Kelston Hall

9.44 Protect the integrity and setting of Newton St Loe and Corston villages

- Retain distinctive village characters by avoiding encroachment of the development
- Existing natural topography and woodland create separation between Pennyquick and Newton St.Loe

9.45 Create a high level of landscape integration through attention to the natural topography and building/ settlement patterns and unique relationship between built form and open space that has been identified as a key feature of Bath (WHS inscription)

9.46 The following features should be noted in relation to the historic City core:

- Tall buildings which occupy slopes
- Areas of inward and outward facing settlements (There is development on both sides of the valley rather than single outward facing slope)
- Street layouts are orthogonal on level ground and organic (curving, slicing and cross cutting contours) on sloping land
- Formal parks and 'semi-natural' greenspace within the city as a legacy of 18th century landscape movements but with resonance today for its 'green' values
- Significant planting of street trees during the Victorian period, but trees largely absent or unrepresented in portrayals of Georgian Bath

9.47 Establish strong connection and views which focus towards Bath rather than Bristol

- Follow established pattern of development in which localised areas of housing create an inward facing visual dialogue across the river valley (as for example between Lansdown to Widcombe; or Bathweston to Twerton; or Camden Crescent to Prior Park)

9.48 Enhance the urban edge as seen from approach roads

- Pay close attention to urban mass, architectural quality and the potential for landscape mitigation to ensure the creation of a robust urban edge resistant to onward development
- Create an architectural cornerstone of appropriate style and quality to delineate the edge of the City
- Create wooded hill tops and punctuated skylines avoiding a built/ hard skyline when seen from lower vantage points
- Respect existing pattern of settlement and the visual relationship between built form and the landscape setting, in order to convey the illusion of a rural landscape extending infinitely outward away from the City
- Much of the site is visible from the surrounding roads (Pennyquick and A4, A431 and A39) and buildings in excess of two storeys are unlikely to be fully screened. Since this is typical of much of historic Bath, the limitations in screening should not necessarily be regarded as a constraint; however careful planting to reduce the impact and massing of built form will be required in order to achieve adequate landscape integration

9.49 Accommodation of existing landscape features including hedgerows, woodland and veteran trees

- To assist landscape integration and enhance visual amenity by giving maturity to any new scheme
- to maintain significant landscape elements for the protection of biodiversity

9.50 Seek landscape mitigations and enhancements to reinforce the strategic gap between Bristol and Bath

- To resist urban sprawl and develop land management options which are compatible with emerging sustainability agendas including sustainable flood plain/ drainage management and habitat improvements for biodiversity
- Offsite landscape enhancement schemes to be considered might include restoration of historic hedgerows, short-rotation willow biomass production, and improvements in public access to the river corridor

10. Land Use

10.1 The site is composed of a mixed use centre, residential blocks and a number of commercial units adjacent to the rail halt in the north of the site.

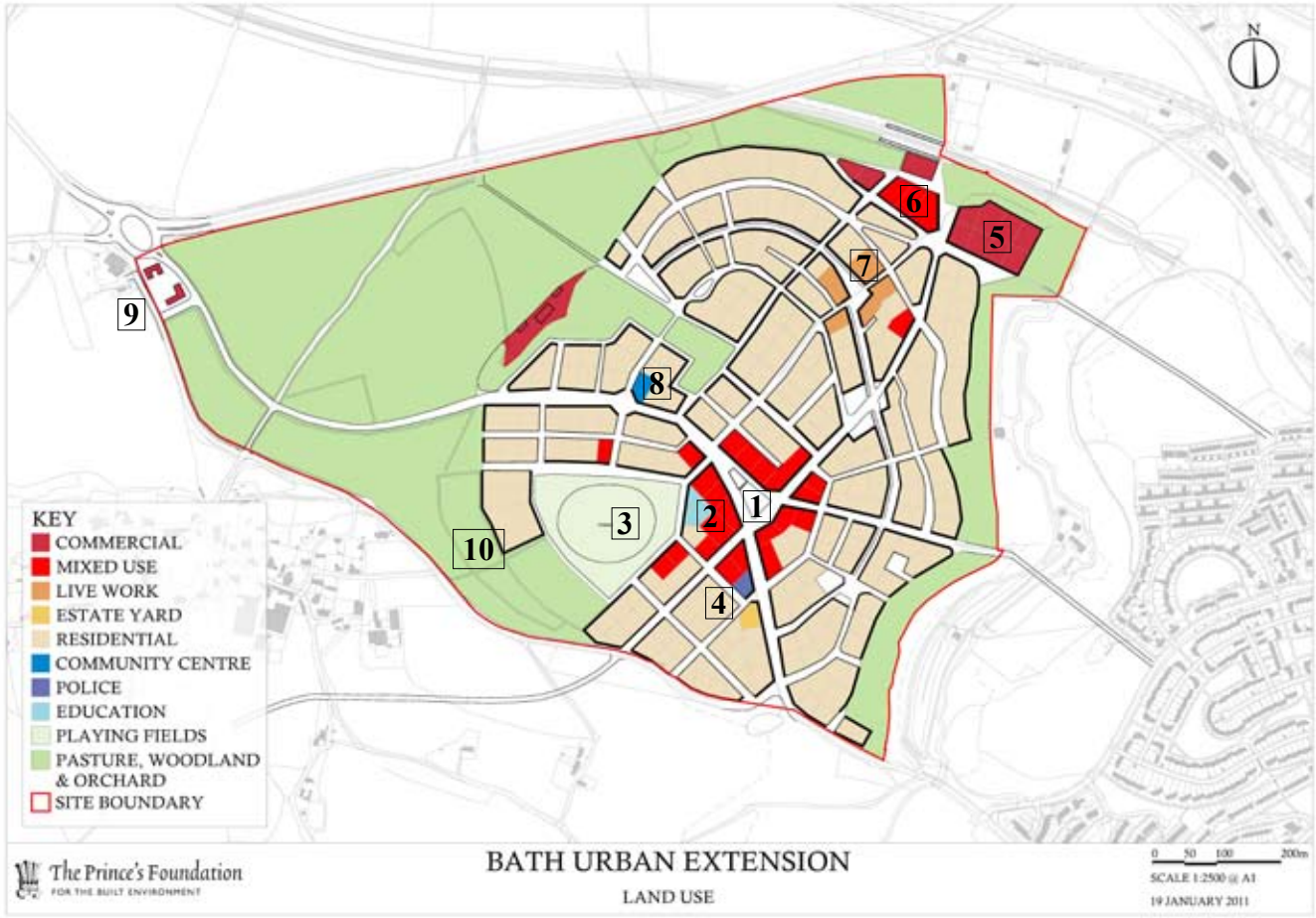
10.2 The neighbourhood centre (1) is to the south of the site on the new arterial route through from the Globe Roundabout to the South of the Bath. This is the main centre with community facilities, including a potential new primary and infant school (2) and associated playing fields (3) behind. Centred on a new formal public space, the school and commercial or retail spaces would provide focus for the new community. These buildings would be commercial in an initial phase but should be flexible to provide retail and cafe space as the community develops. A new police station is planned to be at the heart of the community (4).

10.3 Commercial buildings will be based to the east of the new rail stop (5) in the north of the site with some mixed-use retail to be developed on the ground level outside of the station (6). Live-work units would be centred on a new public green space to the south of the rail station (7), providing flexible homes for starter businesses or workshop space.

10.4 A new community centre (8) would mark the entrance to the urban extension from the west. This building could be combined with a new energy centre to provide a key community asset.

10.5 Commercial retail units to accommodate a farm shop, for example, would occupy land at Globe roundabout (9), linking visually and commercially to the existing pub.

10.6 Further community infrastructure include playing fields and orchards (10) to the south of the site, providing land that can be cultivated for and by the community. Pastureland would surround the site to the west providing a valuable ecological resource.



11. Massing

11.1 The site is capable of accommodating between 1,600 and 2,000 new homes within an urban setting, depending on the density range. By respecting the context of Bath's historic urban development a range of densities can be delivered across the site.

11.2 Higher density blocks would be concentrated around the edge of the urban centre (1) to the east of Seven Acre Wood. Taller residential buildings could be built, layered on to the northern facing slopes.

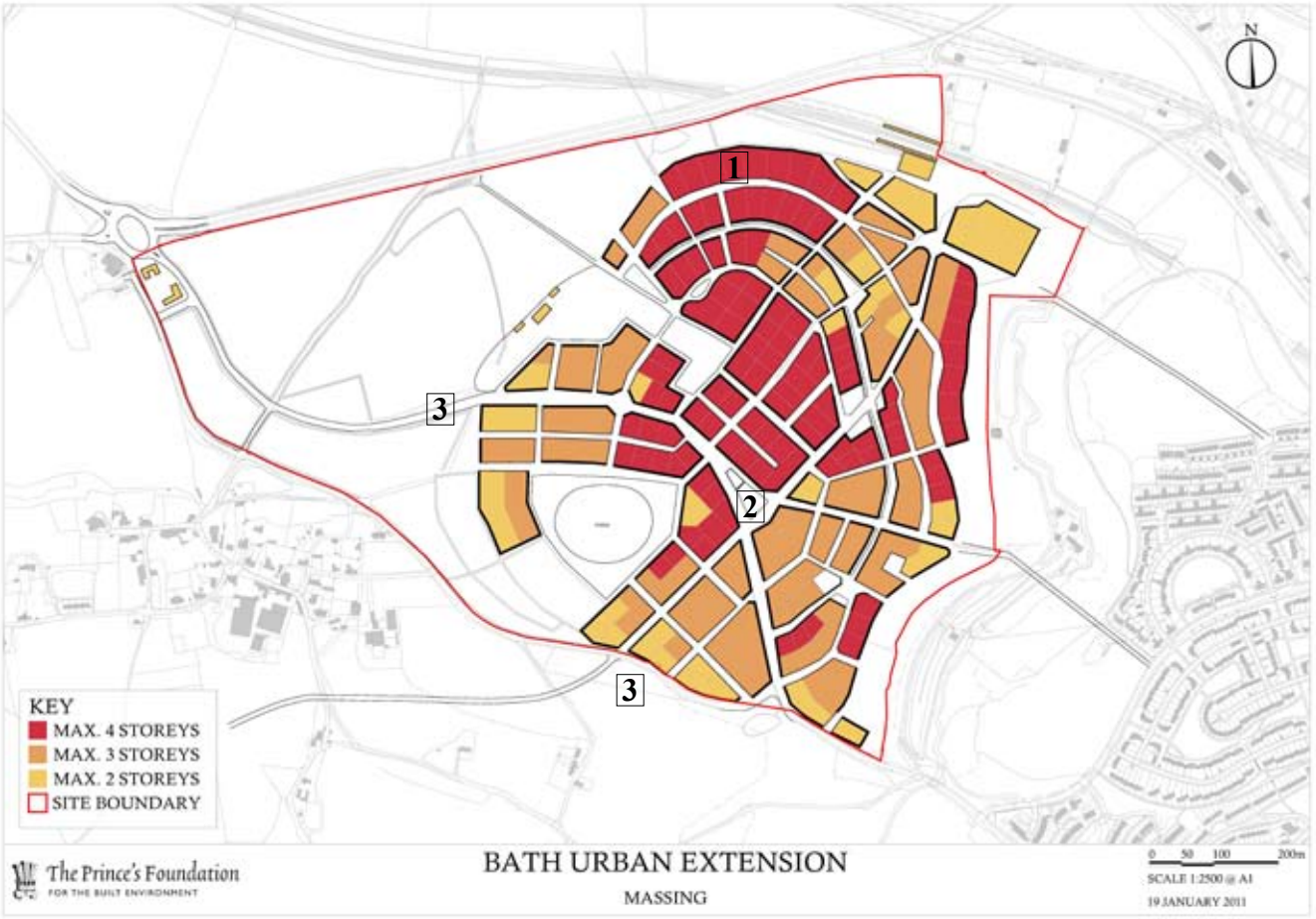
11.3 Lower densities would reinforce the urban edge to the south (2) and south west, protecting the rural setting of Newton St. Loe.

11.4 The proposed densities can be achieved through a sensitive approach to massing. Historic Bath uses a range of building heights and architectural styles to accommodate up to six storeys and around 40 dwellings per hectare. A mix of building heights often sit alongside each other with architectural vocabulary and materials used to bring harmony to the streetscape.

11.5 The massing plan responds to the site topography with taller buildings predominantly placed on lower slopes (1).

11.6 The logical hierarchy of places will be reached by locating taller buildings predominantly around key public spaces (2) and along main streets and landscape corridors. Those buildings would possibly incorporate ground floor retail or commercial uses.

11.7 Principally two storey buildings will be located at the entrances to the neighbourhood from the Globe roundabout and Pennyquick (3) to maintain the rural character and to minimise disruption to the skyline whilst reducing issues of impact on both Twerton and Newton St Loe.



12. Densities

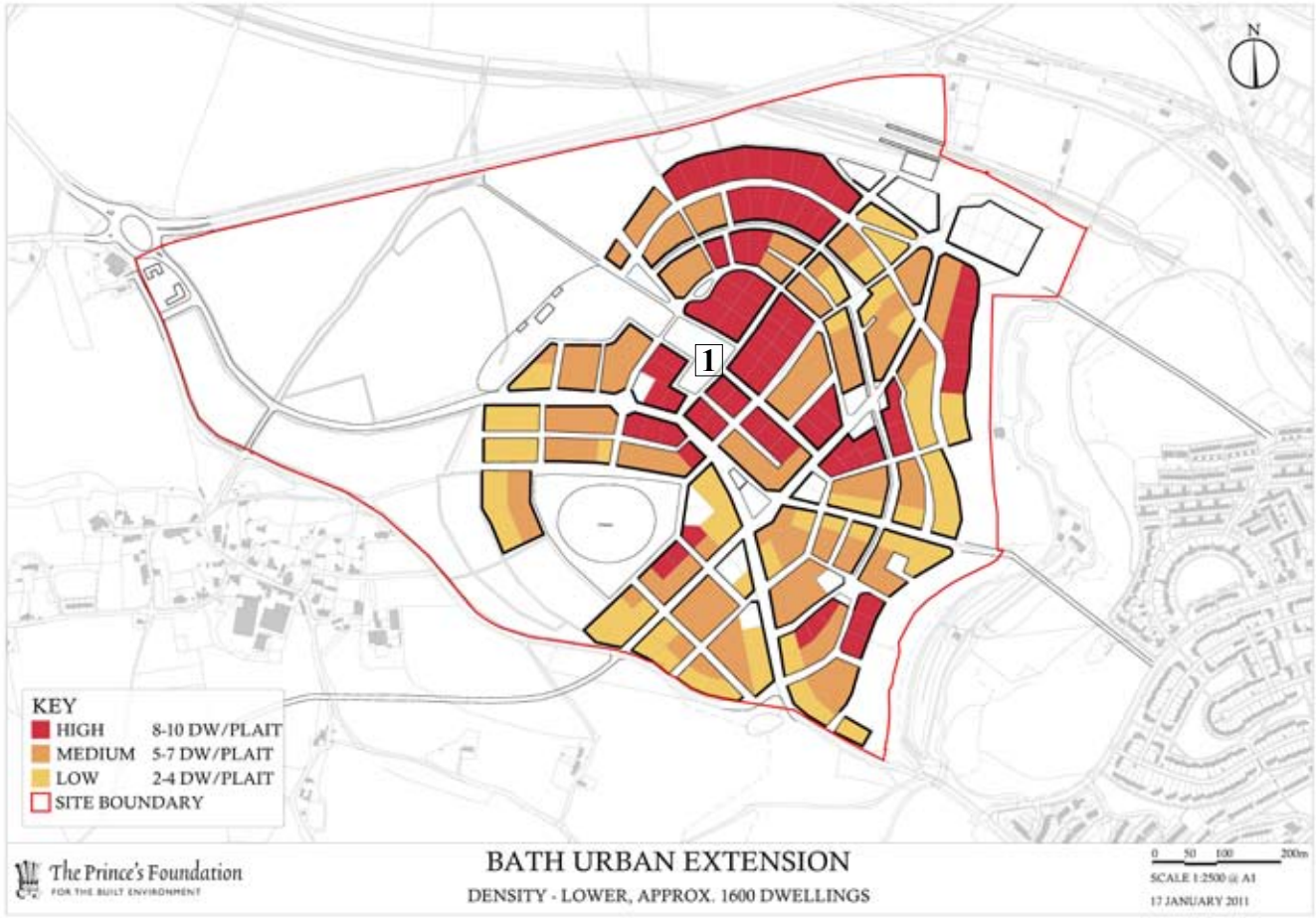
12.1 Two scenarios have been developed to demonstrate the potential numbers deliverable on the site.

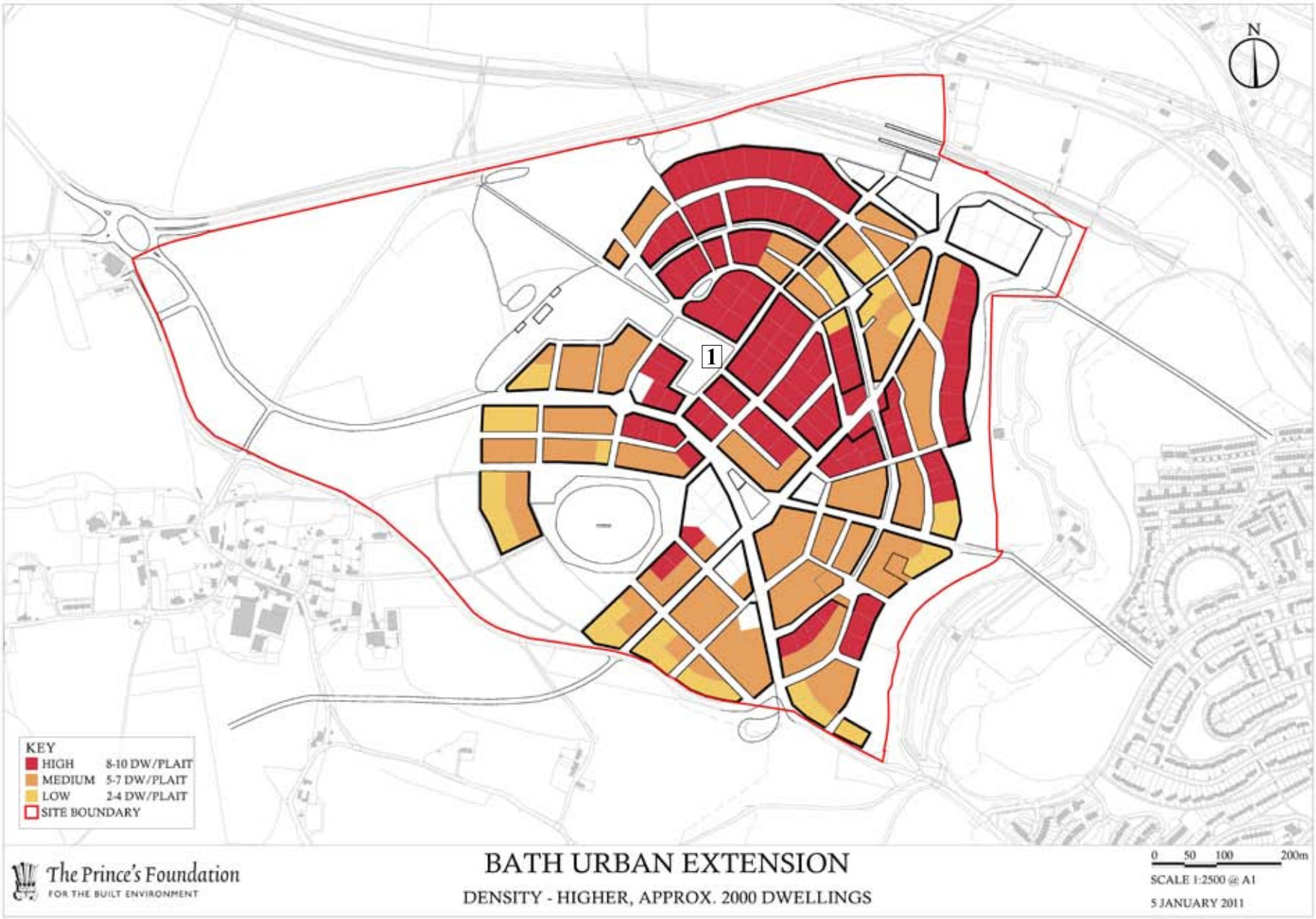
LOWER DENSITY OPTION - 1600 Homes/ 1600 Jobs (This Page)

12.2 The site would generally be built with lower building although higher density development would still focus on the area to the south of the neighbourhood centre (1). This enables taller buildings to be kept away from the ridgeline and ensure the maximum impact of landscaping.

HIGHER DENSITY OPTION - 2000 Homes/ 2000 Jobs (Facing Page)

12.3 Higher density blocks would be concentrated around the edge of the urban centre (1) to the east of Seven Acre Wood. Taller residential buildings could be built on the northern facing slopes.




N
1
KEY
HIGH 8-10 DW/PLAIT
MEDIUM 5-7 DW/PLAIT
LOW 2-4 DW/PLAIT
SITE BOUNDARY
The Prince's Foundation
FOR THE BUILT ENVIRONMENT
BATH URBAN EXTENSION
DENSITY - HIGHER, APPROX. 2000 DWELLINGS
0 50 100 200m
SCALE 1:2500 @ A1
5 JANUARY 2011

13. Phasing

13.1 The landscape provides an opportunity for short-term development to be situated away from high impact views and to the south of Seven Acre Wood. Connections to Twerton and the Duchy's long-term aspirations for the site enable the development of key infrastructure in early phases to provide quick benefits for neighbouring communities and the necessary through traffic to create a viable neighbourhood centre. This phasing pattern would replicate natural organic growth.

13.2 An indicative phasing strategy is set out below:

Phase 1

- Provision of key new route through centre of site in order to divert traffic of Pennyquick Lane and reduce impact on Newton St Loe. Also providing necessary traffic to make retail, commercial and community service elements in the centre viable
- Realignment of Globe roundabout to build capacity for entrance to new neighbourhood
- Provision of commercial opportunities (farm shop) at Globe roundabout to provide outlet for local farms and producers
- Opportunity for flexible buildings in the neighbour hood centre with initial space for office use that can become retail/ food and drink outlets as the community develops
- Provision of key pedestrian link to Twerton providing car-free access to existing services in Twerton and route for pipes for CHP plant
- The majority of development to take place to the south of the site reducing short-term visual impact

Phase 2

- CHP plant with connections by bridge to Twerton in order to provide immediate customers and increase short-term viability
- Growth of residential streets surrounding the neighbourhood centre, viable numbers of people for sustaining key local services
- Provision of a public transport link through to the University increasing sustainable transport options and providing key benefit to Bath Spa University
- Provision of commercial development space to the north of the site
- Provision of community facilities including the potential for a new school and associated playing fields to the south of the site
- SUDS schemes providing drainage through site
- Planting of orchards to provide a buffer to Newton St Loe

Phase 3

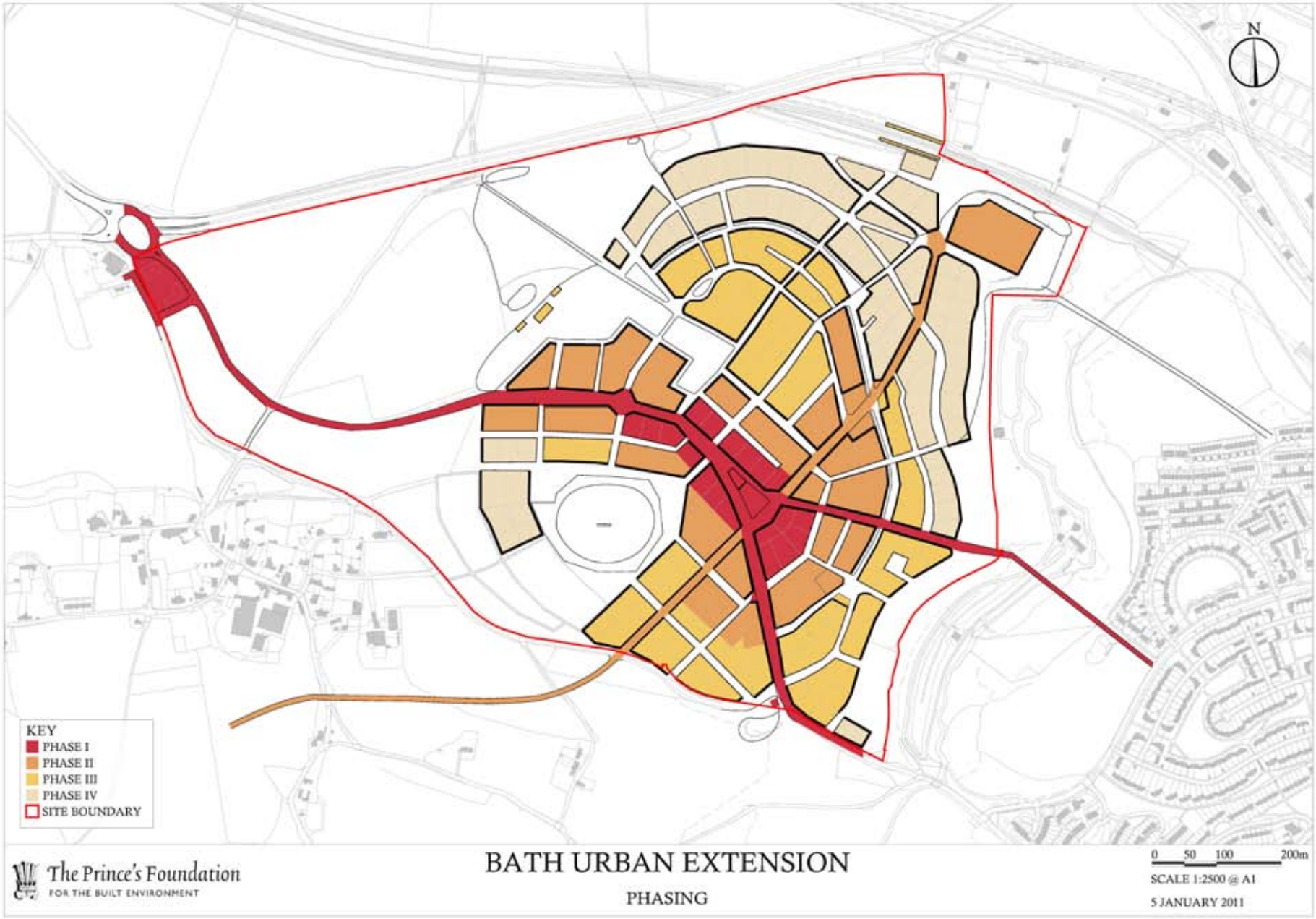
- Further growth of residential neighbourhoods, landscape infrastructure including a major green link fronting the north of the site
- The potential for a new rail halt to the north of the site
- New building to the west of Seven Acre Wood providing employment
- Provision of community gardens including allotment

Phase 4

- Final phase of residential growth to the north, east and west
- Provision of further possible pedestrian link to Twerton and key route through to rail halt

13.3 The following table demonstrates the number of dwellings that could be delivered in each phase under the higher density scheme shown on page 37.

Phase	Number of Dwellings
1	144
2	534
3	720
4	634


N
KEY
PHASE I
PHASE II
PHASE III
PHASE IV
SITE BOUNDARY
The Prince's Foundation
FOR THE BUILT ENVIRONMENT
BATH URBAN EXTENSION
PHASING
0 50 100 200m
SCALE 1:2500 @ A1
5 JANUARY 2011

14. Spatial Vision for a New Neighbourhood

The following extract is taken from B&NES Core Strategy Spatial Options 2009, page 44, paragraph 3.109.

"Proposed Spatial Vision for a New Neighbourhood

The new neighbourhood at south/ south west Bath will be a mixed use extension to the urban edge of the city. It will be an attractive and vibrant new part of the city which exemplifies sustainable living. Buildings will be zero carbon, and opportunities for using local energy resources and local food production will be a core part of the development.

The new neighbourhood will be a new part of the city and will be well linked to the city centre and other areas using sustainable methods of transport, including public transport, cycling and on foot. With the highest quality urban design, the new area will provide a range of housing and will encourage safe and healthy lifestyles.

This neighbourhood will play an important role in the growth of Bath, supporting regeneration of relatively deprived areas in the south of Bath and will complement the redevelopment of the river corridor and the renewal of the city centre.

The development will be located and designed in a way that minimises the potential harm to the setting of Bath. Opportunities to increase access to green space and the countryside and enhance ecology will be realised. The neighbourhood will reflect the form and character of Bath."

15. Unique Site Attributes

14.1 The site responds to both local and national policy and presents an opportunity for future growth of the city of Bath. It is unique in its ability to deliver both housing and employment in a sustainable way for a number of reasons:

- The site is in **single ownership** and has the ability to relate physically to the hinterland for food, energy and recreation through the unique ownership of Duchy land
- Proposed development of a scale to be self sufficient and thereby sustainable with **the capacity to seek carbon neutrality**
- The development can take advantage of **enduring estate control** to secure outcomes for the long-term future of Bath
- The Opportunity for a **new front door to Bath**, providing the catalyst for the regeneration of the western corridor
- The ability to manage a **new relationship between town and country**, preserving key views and protecting surrounding villages
- Level with City Centre and thus **level with public transport corridors**, providing a unique opportunity for sustainable transport infrastructure including a possible **rail connection** and connections to cycle paths and the river
- The site provides an opportunity for the improvement of neighbouring communities through the provision of a **diversion of traffic on Pennyquick Lane** to help protect the village of Newton St Loe and yet bring vitality to the heart of the urban extension and so define the centre of the walkable neighbourhood
- The potential to bring **community benefits to Twerton** through energy sharing, retrofitting of housing stock and direct **pedestrian and cycle links** improving accessibility and viability of key services
- The potential to **assist Bath Spa University achieve its aspirations** through improved sustainable transport options
- The opportunity to relocate uses from the City Centre, freeing up brownfield land for regeneration
- The opportunity to provide around 2,000 jobs (one job per household) and attract new development opportunities including live/ work, workshops and offices

Appendix 1: List of Consultees

The following stakeholders have been contacted by the Duchy with regard to the land west of Twerton:

- Alliance of Religions and Conservation
- Avon County Rowing Club
- Bath & North East Somerset Allotment Association
- Bath Chamber of Commerce
- Bath Charter Trustees
- Bath District Farmers
- Bath Friends of the Earth
- Bath Preservation Trust
- Bath Preservation Trust
- Bath Society
- Bath Spa University
- Bath Stone Group
- Bath World Heritage Manager
- CABE
- Claysend Farm
- Don Foster MP
- English Heritage
- Environment Agency
- Federation of Bath Residents' Associations
- First Great Western
- First Group plc
- Fountain Health Ltd
- Geofutures
- GOSW Planning & Housing Delivery Team
- Historic Landscapes and Gardens
- Homes and Communities Agency
- LiveWork
- Lombard Group
- Manor Farm
- National Farmers Union
- National Trust
- Newton Mill Caravan & Camping Park
- Newton St Loe Parish Council
- Stothert & Pitt Bowls Bowls Club
- Stothert & Pitt Rugby Club
- Sustrans
- The Allotments and Gardens Council
- The Civic Society
- The Georgian Group
- The Sensory Trust
- Transition Bath
- Wessex Water
- West of England Initiative
- West of England Partnership

The following stakeholders have been contacted but have not responded:

- Avon Local Councils Association
- Bath Tourism Plus
- Bathampton Angling Association
- Bristol Water
- British Hydropower Association
- CPRE
- Director of Sport, Bristol University
- Food For Life Project
- Green Bath
- Greenpeace
- Home Builders Federation
- ICOMOS UK
- Network Rail
- Newton Farm
- Stothert & Pitt Cricket Club
- Stothert & Pitt Football Club
- Stothert & Pitt Lawn Tennis Club
- Strategic Transport Projects, BANES
- The Carbon Trust
- The Soil Association
- UK National Commission for UNESCO
- WWF

Appendix 2: The Team

The Prince's Foundation for the Built Environment working with:

Adam Architecture

Aiyana Ltd

Buro Happold

Camco

Cotswold Archaeology

Lear Associates

Peter Brett Associates

RPS Group and

WSP Group

On behalf of the The Duchy of Cornwall.

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