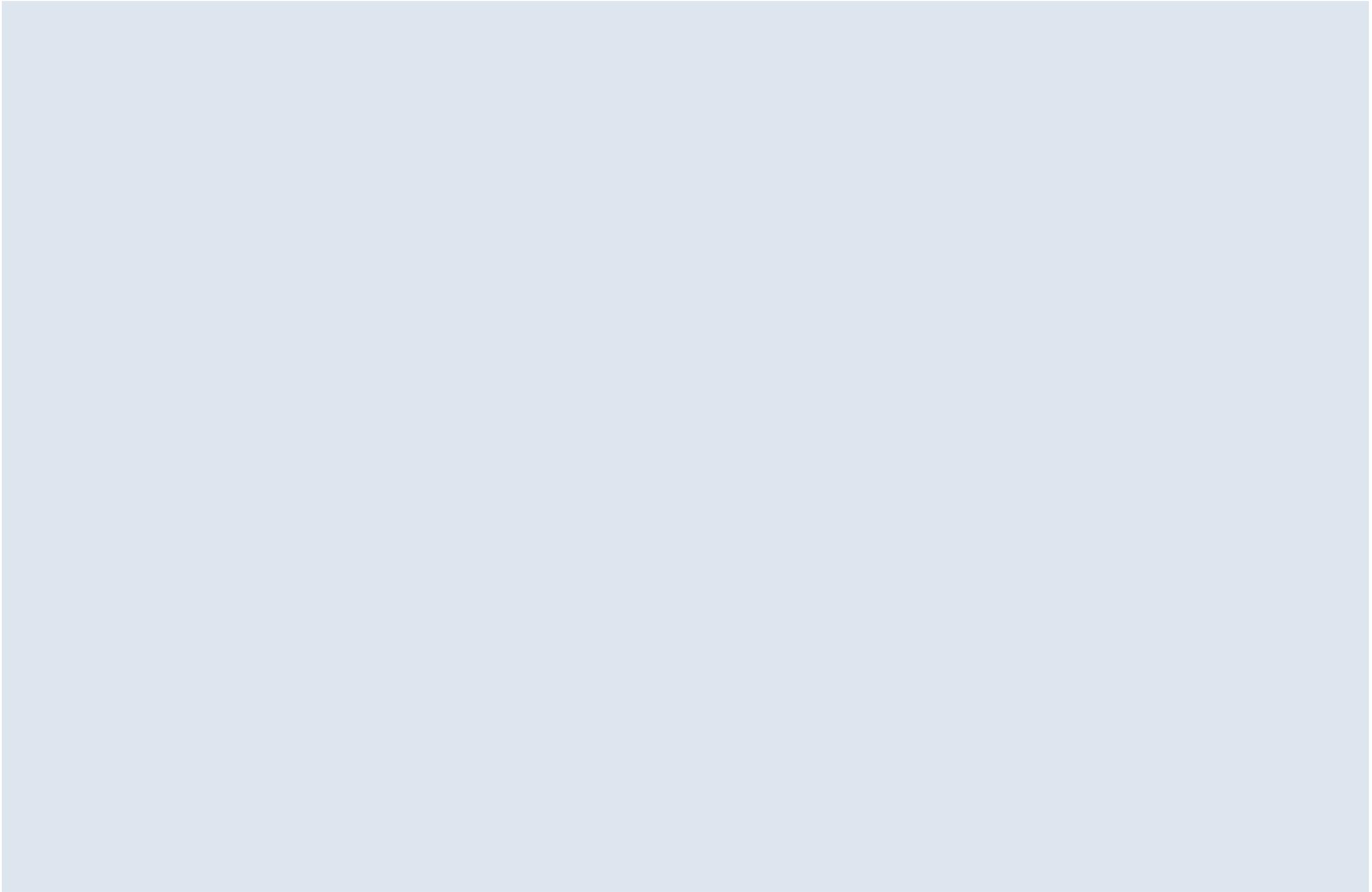


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Part 1 - Introduction

1.1 Background

Atkins consultants were commissioned in January 2005 to undertake a feasibility study to examine the potential for additional strategic development on land around Burgess Hill. The objective of the study is to explore and gain an understanding of the issues and implications for development around Burgess Hill in order to provide a robust response to the South East England Regional Assembly (SEERA). The findings of the study will ultimately inform the South East Regional Spatial Strategy to 2026.

The consultants have undertaken this study in parallel with a similar feasibility study examining potential for development around Crawley.

The client steering group comprises Mid Sussex District Council, Lewes District Council and East and West Sussex County Councils.

1.2 Approach

The aim of this study is to investigate whether there are any areas within the identified Study Area, i.e. contiguous with the Burgess Hill urban area, which could be developed to provide viable, sustainable new neighbourhoods of up to 5,000 dwellings.

The consultants approach has involved evaluating land within the study area which is not environmentally constrained and identifying the capacity of this land to accommodate mixed use development comprising housing, employment and community uses.

The impacts of any potential development on the surrounding transport and utilities infrastructure has been tested to assess whether they can be satisfactorily mitigated.

1.3 Content and Structure of Final Report

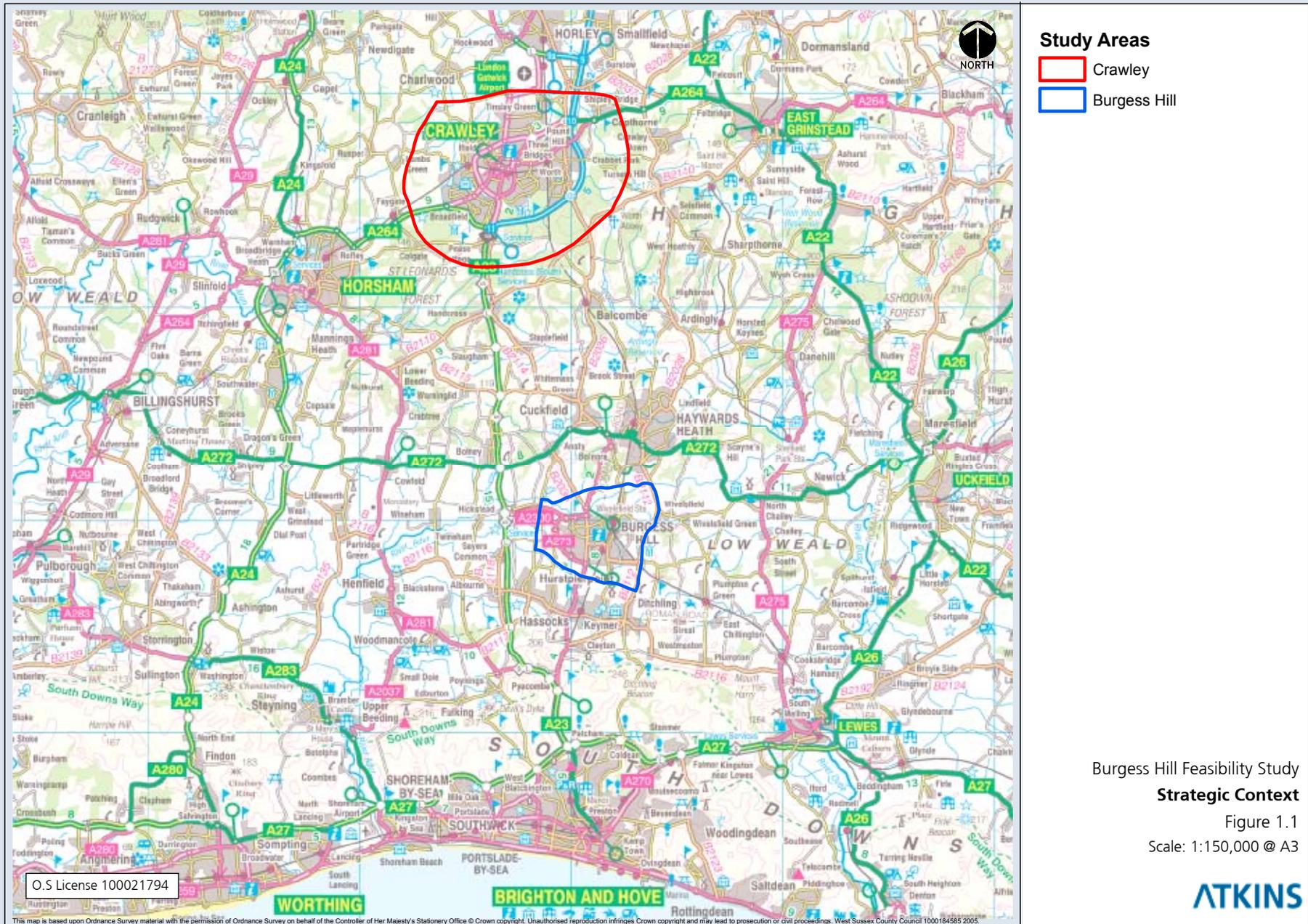
In line with the Clients' brief, an Interim Report was produced which identified broad strategic locations for development and key infrastructure requirements for each location. An evaluation of the proposed options was included to allow a comparison between options and inform which option would be subject to further analysis.

This final report provides closer analysis of the chosen option to assess issues such as timing and feasibility in relation to the delivery of other commitments in the area and sub-region. A more detailed assessment of the capacity of the strategic locations identified has also been undertaken along with indicative layouts for the strategic locations identified.

This document is set out in five parts. Part I discusses the background to the site and provides the context for site development. Part II sets out the findings of the Interim Report and identifies the option which was taken forward for further analysis. Part III provides an indicative site layout for each site within the chosen option, describes the broad development principles and mix of uses and illustrates the movement and transportation aspects of the development. Part IV demonstrates the potential traffic impacts and identifies whether appropriate measures can reduce impacts to an acceptable level. A summary of the findings and conclusions is included as Part V.

1.4 Strategic Context

Figure 1.1: Strategic Context, illustrates the strategic location of Burgess Hill in relation to its sub-region. It is located approximately 10 miles from Brighton to the south and 45 miles from London to the north. It is served by a fast rail service between London Victoria and Lewes/Brighton.



Burgess Hill Feasibility Study
Strategic Context
 Figure 1.1
 Scale: 1:150,000 @ A3



2. Planning Policy Context

2.1 National Planning Policy Framework

Planning policies have had a key influence on the approach taken in this study. The national planning policy framework is provided by a series of Government Circulars, White Papers and Planning Policy Guidance notes (PPGs) and the new Planning Policy Statements (PPSs) which are now replacing PPGs, published by the ODPM and the former DTLR. Over the last five years, a number of significant changes have taken place in national planning guidance; notably:

- A new PPS1, Delivering Sustainable Development, which places stronger emphasis on the concept of sustainable development and fresh emphasis on mixed use development and design;
- The White Paper, A Strategy for Sustainable Development in the UK, which sets out the Government's wider objectives for sustainable development;
- The revised PPG3, Housing, which aims to encourage housing development, which make more efficient use of land and considers planned extensions to existing urban areas as being likely to prove the most sustainable option after building on appropriate sites within urban areas;
- The publication in July 2001 of an entirely new Planning Policy Guidance Note, PPG25, Development and Flood Risk, which sets out the importance the Government attaches to the management and reduction of flood risk in the land use planning process, to acting on a precautionary basis and to taking account of climate change;
- The recently published PPS6, Planning for Town Centres, which replaces PPG6 and is regarded by Government as a major step in promoting planning policies that will produce more sustainable and inclusive patterns of development and confirms a policy commitment to revitalising town centres;
- A new PPS7, Sustainable Development in Rural Areas, which gives advice on the role of the planning system in relation to the countryside;
- A revised PPG13, Transport, which seeks to promote more sustainable transport choices and reduce the need to travel, especially by car;
- A new PPS22 which replaces PPG22 and sets out the Government's planning policies for renewable energy, which planning authorities should have regard to when preparing local development documents and when taking planning decisions;
- An Urban White Paper published in November 2000, which embraces a wide range of issues including the work undertaken by The Prince's Foundation and English Partnerships (supported by DTLR and the CPRE) on sustainable urban extensions.

2.2 Development Plan Background

The Development Plan which covers this area comprises Regional Planning Guidance RPG9 (2001), the West Sussex Structure Plan (2005), the East Sussex & Brighton & Hove Structure Plan (1991), Mid Sussex Local Plan (2004) and the Lewes District Local Plan (2003). The District boundaries are illustrated on Figure 3.1, the majority of the study area falls within Mid Sussex district. Under new Government legislation the strategic planning responsibilities of the County and Unitary Authorities and its Structure Plan will be replaced by the South East

England Regional Assembly (SEERA) and its Regional Spatial Strategy which will cover the period between up to 2026. New legislation will require that the Local Plans are replaced by Local Development Frameworks by April 2007. Work on these has already started.

Future development will be assessed in line with revised planning policy guidance contained in the revised PPSs, Regional Spatial Strategy and Local Development Frameworks. We have taken account of the sustainable development principles which run through the Development Plan and the existing environmental designations.

The study is also based on best practice guidance. Any development should satisfy the requirements of these principles and policies and be based on:

- High quality design;
- A mix of housing types and sizes, including affordable housing;
- Adequate facilities and services to serve the new community, including local shopping, education, healthcare and community facilities;
- Adequate formal and informal public, private and amenity recreation land/open space;
- Provision of suitable access routes from the development to the adjacent transport network for public, commercial and private transport and walking and cycling;
- Integration with surrounding urban areas;
- Improvements to informal public access to the countryside;
- Retention of the main landscape features;

- Protection of the main nature conservation interests;
- Provision for the phased implementation of the development in step with employment, social and physical infrastructure;
- Adequate improvements to the sewerage and water supply systems, including the implementation of Sustainable Drainage Systems, where feasible.

2.3 Sustainable Development

The concept of sustainability means that human needs must be integrated with environmental considerations and forces us to consider the environment in the widest sense. This does not mean preventing economic growth as we need growth to provide a means to live better and healthier lives. However, growth has to respect the environment and must be soundly based so that it can last.

The theme of achieving “sustainable development” is one which runs throughout the Structure Plan and the Local Plan documents. The most common definition of sustainable development comes from the Brundtland Report (1987):

‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs.’

The concept of sustainable development is based on the assumption that there must be environmental gains within the development to offset the losses. There are a number of specific aspects of the proposals for which sustainable design principles have been used. These include:

- Transport;
- Energy;

- Water;
- Building Design;
- Construction Management.

‘Towards Sustainable Housing: Principles and Practice’ describes the following design principles for achieving sustainable development:

- Compact, medium to high density forms (but not high-rise);
- Mix of land uses based upon overlapping zones of living, working, leisure and shopping;
- Public transport orientated urban design;
- Pedestrian friendly streets;
- Integration of development and nature on site;
- Development patterns dictated by walking or cycle distances.

Transport

The encouragement of transport sustainability is a key issue to be addressed. This issue related back to the policy context set out in the previous section and the need to achieve a sustainable form of development which will reduce dependency on the private car.

The encouragement of transport sustainability was one of the guiding principles behind the design of the site layouts illustrated in Part III. The principal means by which this element of sustainability will be encouraged include:

- The concentration of higher density residential development (at about 40-50dph) within easy walking distance of facilities;
- The provision of public transport facilities within, or in close proximity, to the local centres and the nearby higher density residential development;

- The location of lower density residential development towards the edges of the scheme, enabling land closest to the local centres to be developed at a high density;
- The location of most residential neighbourhoods within 5-10 minutes walking distance (about 400-800m) of facilities in the local centres;
- The provision of pedestrian/cyclist routes connecting the residential neighbourhoods to the local centres and providing a safe route to the primary schools and secondary schools;

The above measures were designed in accordance with various policy documents and design guidelines, including the final report of the Urban Task Force ‘Towards Urban Renaissance’ and the ‘Urban Design Compendium’ published by English Partnerships. Taken together, the measures outlined above will encourage the use of alternative means of transport to the private car and thereby help in achieving greater levels of sustainability.

Energy

Energy saving measures should be taken into account in the design of any new community:

- The proposed development should incorporate a high proportion of linked buildings, apartments and terraced houses;
- The orientation of the development to optimise solar potential;
- The alignment of the internal road network produces a layout which would be unlikely to avoid wind funnelling or of frost traps;
- The role of fenestration, materials and planting in encouraging energy efficiency are matters which would be addressed at the detailed design stage.

Water

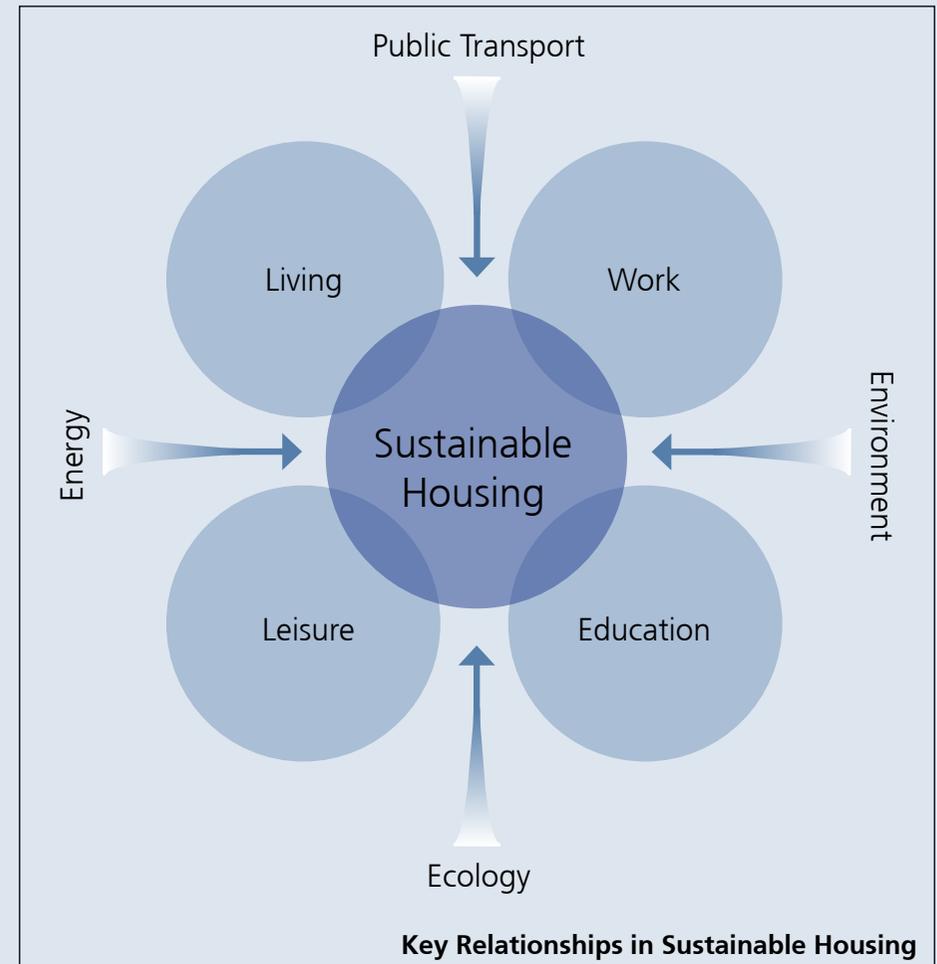
Sustainable urban drainage systems (SUDS) are proposed on-site to enable surface water run-off to be retained as near to source as possible, thereby reducing the amount of drainage infrastructure and its high capital and maintenance costs. The systems that could be used on site include retention ponds and balancing ponds, into which run-off will be held prior to discharge to receiving watercourses; and which will incorporate biological management measure (such as reed beds) to improve the quality of discharged water. The form of other SUDS techniques, such as infiltration trenches, filter drains and swales, can also be determined at the detailed design stage, in accordance with the current best practice. In addition to site-wide techniques, housebuilders could be encouraged to incorporate water conservation measures during construction.

Building Design/Construction Management

A series of other measures, for example, the environmental sustainability of construction materials and the re-use of topsoil on site, can be considered as part of detailed proposals.

The site layouts (part III) have been checked against current best practice in sustainable development as demonstrated in the publication 'Sustainable Communities'. This assessment is presented in the checklist in Table 2.1.

*Source: Sustainable Housing
- Architecture, Society and
Professionalism*



| GLOBAL ECOLOGY: | |
|---------------------------|--|
| Energy in transport | <ul style="list-style-type: none"> Locations that minimise trip lengths, and are well served by public transport Design that fosters walking and cycling and discourages car reliance |
| Energy in buildings | <ul style="list-style-type: none"> Energy-efficient built form and layout Development of community renewable energy |
| Biodiversity | <ul style="list-style-type: none"> Wildlife refuges and corridors Conservation and enhancement of woodland Woodland to incorporate controlled access areas to maximise ecological benefits and encourage regeneration of woodland |
| NATURAL RESOURCES: | |
| Air quality | <ul style="list-style-type: none"> Traffic reduction and air quality management |
| Water | <ul style="list-style-type: none"> Local sourcing and demand management Local surface water/sewage treatment Built development outside 1 in 100 year floodplain Use of sustainable drainage systems |
| Land and soils | <ul style="list-style-type: none"> Higher densities to reduce urban land take Local composting/organic recycling schemes Tenant farmer to manage agricultural land with possible wider responsibilities of watercourse management etc |
| Minerals | <ul style="list-style-type: none"> Locally-sourced and recycled building materials |
| LOCAL ENVIRONMENT: | |
| Aesthetic quality | <ul style="list-style-type: none"> Attractive pedestrian-scale local environment |
| Image and heritage | <ul style="list-style-type: none"> Legible environment with a sense of place Design reflecting distinctive landscape and cultural heritage |

| SOCIAL PROVISION: | |
|---------------------------------|--|
| Access to facilities | <ul style="list-style-type: none"> Accessible, good quality health, educational, community, retailing and leisure facilities |
| Built space | <ul style="list-style-type: none"> Diverse, affordable good quality housing stock Adaptable, good quality commercial/institutional space Flexible multi-use community buildings |
| Open space | <ul style="list-style-type: none"> Accessible, well run parks/playgrounds and community woodland Funding to improve quality of neighbouring playing fields and pitches |
| Infrastructure | <ul style="list-style-type: none"> Adaptable, easily maintained road and utility networks Establishment of a local community trust to give 'ownership' to the emerging community |
| ECONOMIC SUSTAINABILITY: | |
| Job opportunities | <ul style="list-style-type: none"> Diverse and accessible job opportunities with good local training services |
| Economic buoyancy | <ul style="list-style-type: none"> Encouragement for local offices/workshops/live work units, good local training services Provision of employment land |
| SOCIAL SUSTAINABILITY: | |
| Health | <ul style="list-style-type: none"> Pollution-free environment facilitating exercise, local food production and mental well-being |
| Community safety | <ul style="list-style-type: none"> Safe traffic-calmed streets with good visual Socially balanced neighbourhoods |

Table 2.1 A Sustainability Checklist, Applied to Neighbourhoods

3. Appreciating the Context

3.1 Environmental Constraints

Figure 3.1 shows the Local Plan planning and environmental constraints for the area around Burgess Hill along with floodplain areas and the proposed South Downs National Park boundary.

3.2 Local Context

Local train stations and secondary schools with their walking catchment areas are illustrated on Figure 3.2 to demonstrate whether any of the potential development areas fall within walking distance to any existing stations and schools.

3.3 Ecological Assessment

The areas under consideration for housing development around the outskirts of Burgess Hill have been assessed for their value in terms of nature conservation and biodiversity.

This assessment aims to identify the biodiversity value of the study areas so that development areas can be refined and located to avoid the most sensitive or valuable habitats and species and to identify development areas where there is little or no known nature conservation interest. The aim has been to provide a visual representation of the nature conservation interest of the study area using a colour coded map (Figure 3.3) following the assessment criteria identified.

Red - No Development

- Site of international importance (Special Area of Conservation, Special Protection Area, Ramsar site)
- Site of national importance (Site of Special Scientific Interest, National Nature Reserve)
- Site of regional or county importance (Sites of Nature Conservation Importance, Local Nature Reserves, ancient woodland, ghyll woodland)

Amber - Development with Appropriate Mitigation

- Key features of local importance and features which are characteristic of the local area (can include Biodiversity Action Plan habitats and species, significant features such as old hedgerows, ponds and streams)
- Land adjacent to designated sites of importance for nature conservation both of which may be utilised by mobile species as part of their breeding territory or foraging range

Green - Preferred Development Areas

- Sites with little or no known biodiversity interest

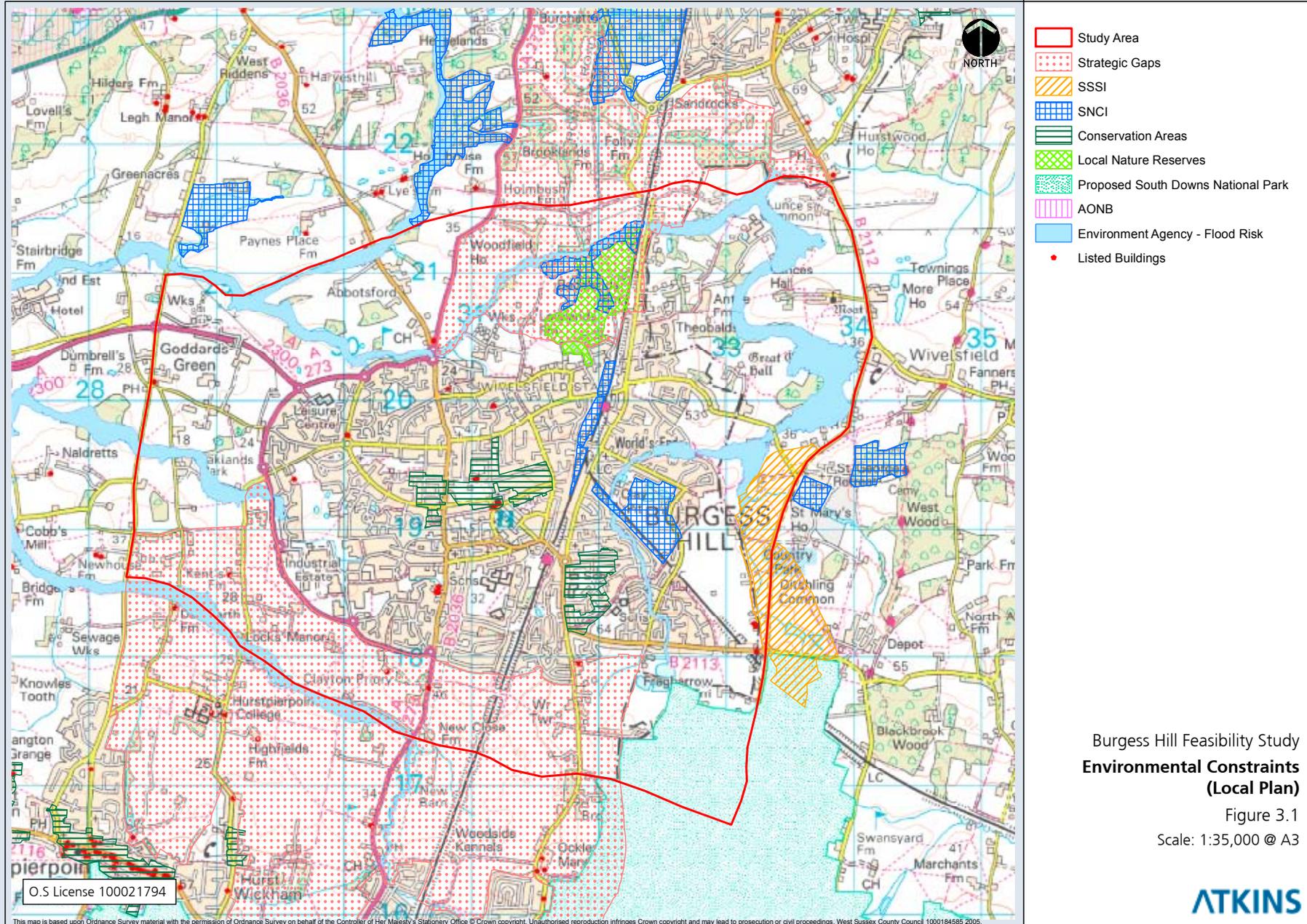
Red classification includes all designated sites, both statutory and non-statutory, including ancient woodland and ghyll woodland. Ghyll woodlands are ancient, steep sided, wooded valleys created by streams cutting gullies into existing slopes. As a result of their steep and rugged nature, they have remained undisturbed and can be regarded as ancient woodland. This classification indicates that no development should be undertaken in these areas.

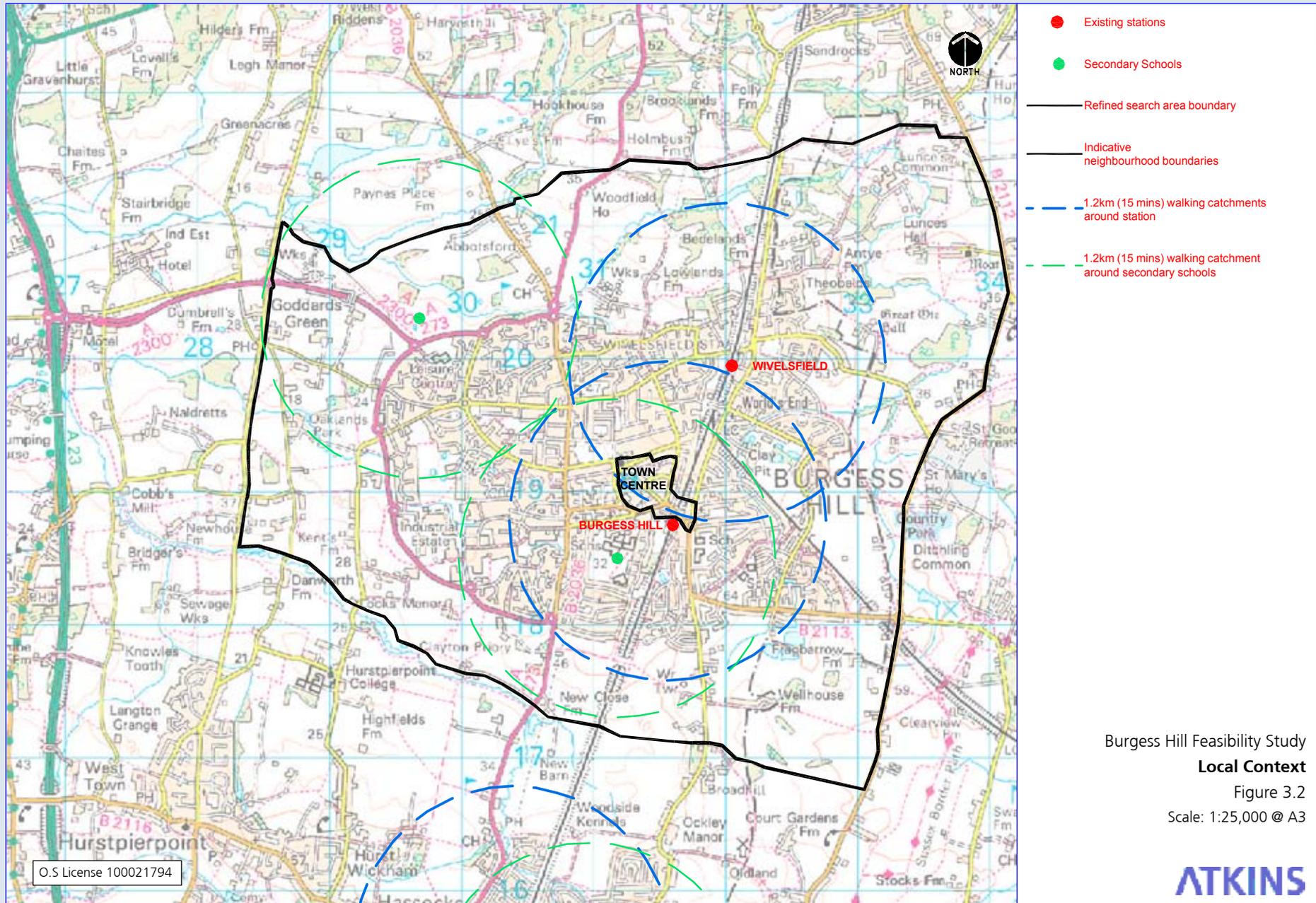
Amber classification includes all areas of local importance and key features of the local landscape, as well as land adjacent to designated sites that may be utilised by mobile species and which could be zoned as a 'buffer' against adverse impacts on designated sites. An amber classification indicates that development could potentially go ahead if appropriate mitigation measures can be put in place. A precautionary approach should be employed in amber areas such that the areas are assumed to be important until proven otherwise. Where protected, scarce, rare, threatened or notable species or habitats occur outside designated sites, suitable mitigation measures and management strategies will be required to enable development to go ahead.

Areas where rare or legally protected species occur outside designated sites will also be classified as amber e.g. a great crested newt breeding pond and the terrestrial habitat around it which could be used as a resting place or foraging habitat would be considered amber.

Green areas are those where little or no biodiversity interest is known to be present. These areas will be the preferred development areas. However, it should be noted that these green areas may include features of local importance within them which would be classified as amber e.g. hedgerows, ponds.

The assessment is desk based to identify the known biodiversity resource in the area. This resource has been mapped and used to inform potential developable areas. Field visits will be necessary prior to detailed masterplanning in order to identify the presence of suitable habitat for protected species, for example suitable terrestrial habitat around great crested newt breeding ponds, or suitable reptile





habitat. This will also identify any habitats of nature conservation value present in the study areas, which need to be considered as part of the assessment, for example areas of unimproved or semi-improved grassland.

The first part of the desk study involved contacting the Sussex Biodiversity Record Centre (SxBRC) for information regarding protected and notable (rare or scarce) species and nationally, internationally and locally designated sites occurring within 2km of the study area, in accordance with Planning Policy Guidance Note 9 (Nature Conservation).

The desk study has also involved consultation of the Government web site of Multi-Agency Geographic Information for the Countryside www.magic.gov.uk to gain information about designated sites and ancient woodland in the study area.

Designated areas

There are no internationally designated sites or National Nature Reserves in the study areas or within the 2km zones around them. Ditchling Common is the only nationally designated Sites of Special Scientific Interest (SSSI) within the study area and the 2km zones around the study areas.

The presence of this site within and in close proximity to the study areas has implications for the siting of development within the area. A 500m buffer around the site has been assigned in which development should be possible with appropriate mitigation. The buffer should reduce the amount of disturbance and disruption to the SSSI during and following development. These buffer zones have been classified as amber as they are not a part of the formally designated SSSIs. However, as it forms the buffer to the SSSI designation, development should not go ahead within the buffer zones unless there is no other

satisfactory option and when all impacts are mitigated as far as possible.

Provided development does not take place within the red areas, it is anticipated that there will be no direct impacts from development within the study areas or the designated sites occurring within them or close to them. Despite this it is possible that indirect adverse impacts will arise. There are potential problems and impacts associated with urban spread on SSSI sites. These may include:

- Increased risk of fires, either deliberate or accidental, due to increased use of by the public;
- Fly-tipping and dumping;
- Illegal vehicle use, such as motorbikes which can denude vast tracts of vegetation;
- Increased recreational use of sites, particularly by dog walkers, causing soil erosion, soil enrichment leading to changes in vegetation compositions and disturbance to ground nesting birds ;
- Predation of native fauna, including reptiles, amphibians and birds by cats and dogs;
- Disruption to the hydrology of sites due to increased hard standing in areas adjacent to water courses which traverse the sites;
- Pollution during construction and operational phases of development from contamination of water courses and from air pollution caused by increased car use on roads adjacent to the designated sites.

These impacts could potentially adversely affect the integrity of the designated SSSI sites which are identified above. The effect of development on the integrity of these sites is likely to be the main ecological concern, rather than the direct impacts to habitats and species present within the study area.

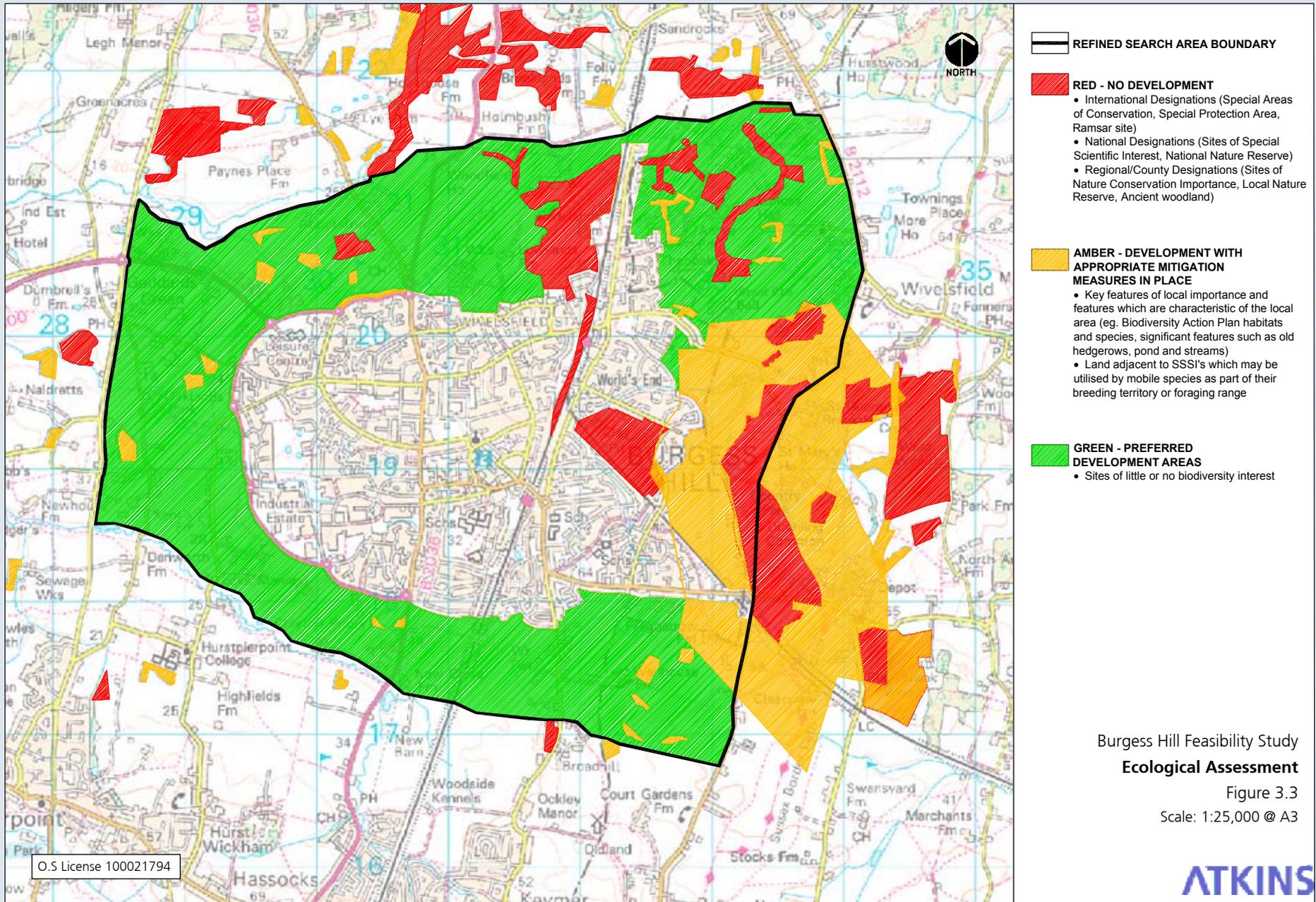
As indicated by the assessment criteria, the areas shaded red on the nature conservation evaluation map are areas covered by designation or are areas of ancient or gyhll woodland. The red areas on the evaluation map therefore include the SSSIs as described above and Sites of Nature Conservation Importance (SNCI), ancient and gyhll woodland sites. SNCI sites within the Burgess Hill study area include areas of clay pit, reed bed and deciduous woodland.

Key Features

The amber areas on the nature conservation evaluation map, other than those listed above, include habitats such as non-ancient woodland, recently planted areas of wood, species-rich hedgerows, ponds, streams and semi-improved grassland. Each of these habitat types are important for different reasons, as outlined below.

Species-rich hedgerows are important for biodiversity within the farmland landscape, acting as a corridor providing protection and facilitating movement between different habitat areas in an otherwise unsuitable environment. Hedgerows are also important habitats in their own right. Bats and badgers can also use hedgerows for foraging, travelling through the landscape and for roosting or creating setts respectively.

Streams are an important linear feature in the landscape assisting the movement of species through the farmland environment. The habitats surrounding streams can also be influenced by the watercourse, creating damp grassland and woodland areas and wetland habitats including reedbeds. Streams are important habitats for bats, particularly Daubenton's, and birds including kingfisher. Many invertebrates are dependent on the wetland mosaic that can arise around streams.



There are a number of ponds within the study area. These provide another important habitat for wildlife. The number of ponds in the UK has declined dramatically over the past 100 years due to a number of reasons including neglect, agricultural intensification, land drainage, urban encroachment and pollution. This habitat is important for amphibians including the great crested newt, invertebrates including southern damselfly, reptiles, particularly grass snakes, bats and many bird species.

Biodiversity-rich arable habitat, for example where margins have been left to develop providing habitat for plants such as cornflower and ramping-frumitory and birds such as corn bunting and grey partridge.

Conclusions

Within the study area there are areas of high nature conservation value (classified red) and intermediate nature conservation value (classified amber). High value areas include the designated SSSI and development should not be undertaken in these areas.

There are no internationally designated sites and no National Nature Reserves (NNR). Intermediate value areas include the buffer zones around the SSSI, and other features of local importance, including species-rich-hedgerows, ponds and streams with associated wetland habitats. These areas should be avoided by development proposals as there is higher potential that these habitat areas will support protected species, such as great crested newts, dormice and badgers and the habitats themselves are of intrinsic value which would be lost to development. Suitable mitigation measures will be required for any development which affects protected species or habitats of particular importance. The feasibility of implementation of mitigation, such as translocation of species and habitats, or compensatory habitat creation, should be considered when locating new development.

It should be noted that this is not a full assessment of the study areas, only an evaluation of the desk study

information provided. A full assessment, considering all protected, rare and BAP species and BAP habitats along with a field survey should be undertaken prior to detailed masterplanning work. The results of these further studies may result in additional small areas of the study area being classified as amber.

3.4 Landscape Assessment

The landscape has been assessed in terms of its capacity to accept development following the assessment criteria identified on the plan. We have taken account of the proposed National Park boundary but not the locally designated Strategic Gaps boundaries in order to provide a comprehensive and independent assessment (Figure 3.4).

Red: Unsuitable for Development

- Hilltops and ridgelines where development would be highly visible from a considerable distance;
- Steep valley sides and bottoms;
- Existing woodland and major hedgerows;
- Floodplains.

Amber: Potentially Suitable for Lower Density Housing or Open Space

- Ridgelines, generally not visible from a distance;
- Sloping valley sides partially concealed by landform or woodland;
- Paddocks and small fields adjacent to settlements;
- Former parkland.

Green: Suitable for Medium and Higher Density Housing

- Flat or shallow sloping land, generally not visible from a distance;
- Land visible from only a small number of existing properties;
- Land already affected by the A35 road corridor and utilities.

Figure 3.5 demonstrates the varied geology of the area and the topographical constraints especially to the south. Figure 3.6 provides a number of photo montages to illustrate the landscape character of the developable areas.

3.5 Flooding and Surface Water

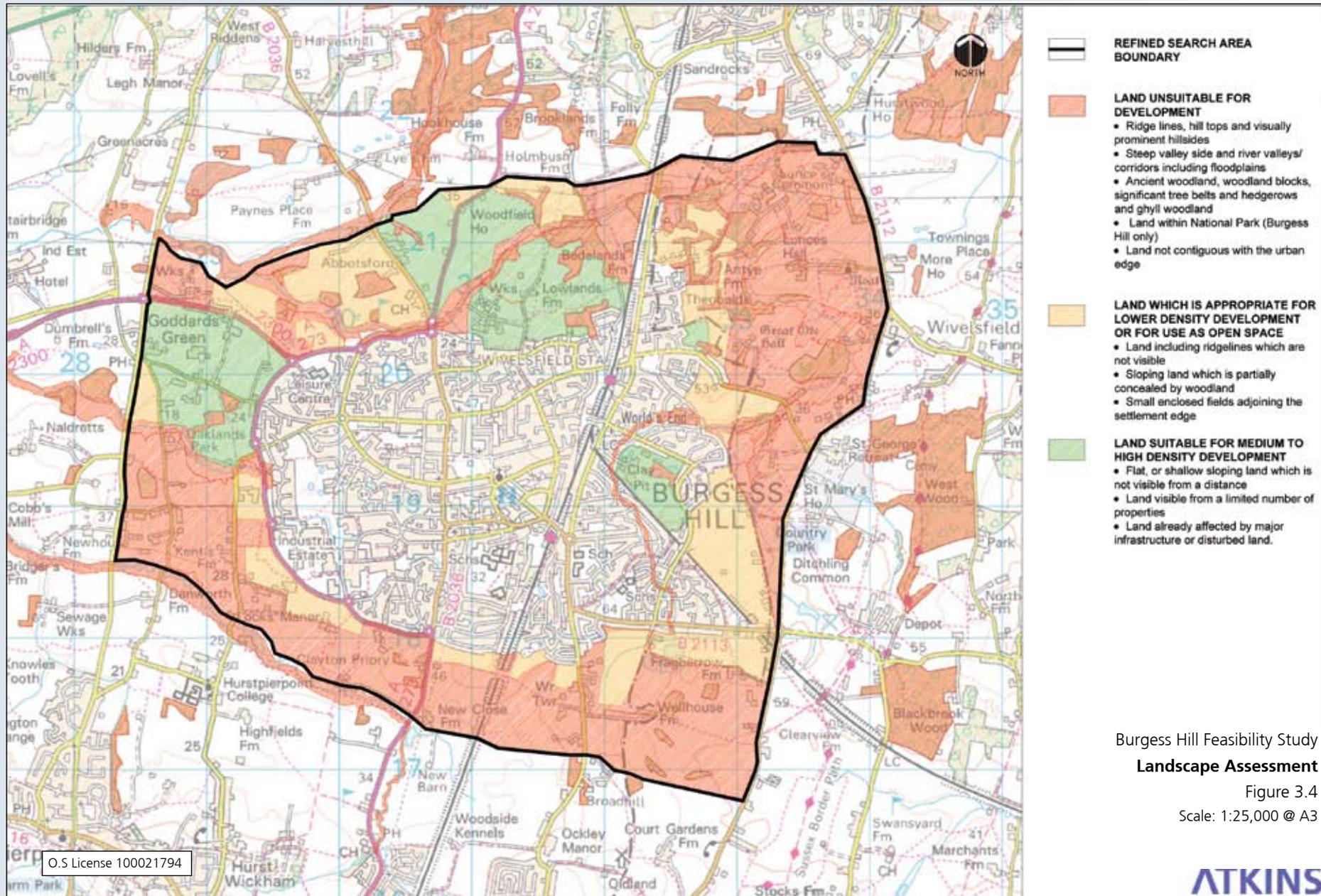
Figure 3.1 shows the extent of the Environment Agency's current Indicative fluvial and tidal Floodplains in the area. It indicates that the sites have been selected to avoid the Environment Agency's current 1000 year indicative floodplain.

It should be noted that these flood extents do not take into account the possible effects of climate change on sea level and river flood levels and of local flooding of small watercourses such as those within the site. A flood risk assessment may be required, for development of this scale, which would also examine the possible effect of climate change on the flood extents.

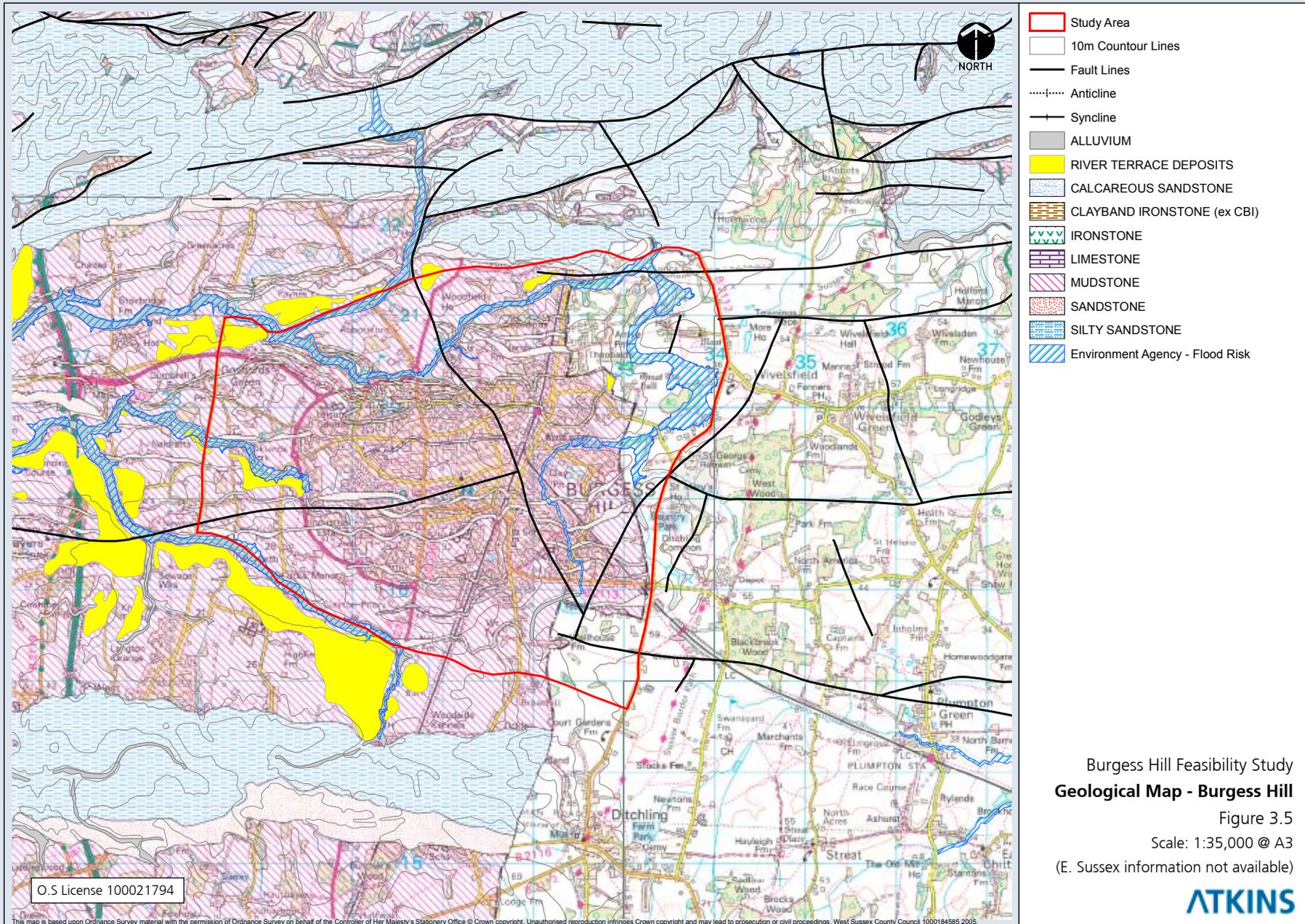
It appears that there are no sites particularly vulnerable to extensive flooding downstream of Burgess Hill. A Sustainable Drainage System (SUDS) may nonetheless be sought by the Environment Agency.

All of the areas under consideration around Burgess Hill appear to be on slowly permeable silty soils, meaning that infiltration of surface water is unlikely to be effective. It is likely that, if SUDS are required, significant attenuation (by ponds, or swales, etc.) will be necessary.

There are no groundwater protection zones in the vicinity of Burgess Hill.



Burgess Hill Feasibility Study
Landscape Assessment
 Figure 3.4
 Scale: 1:25,000 @ A3





1. VIEW TOWARDS BURGESS HILL FROM THE B2036



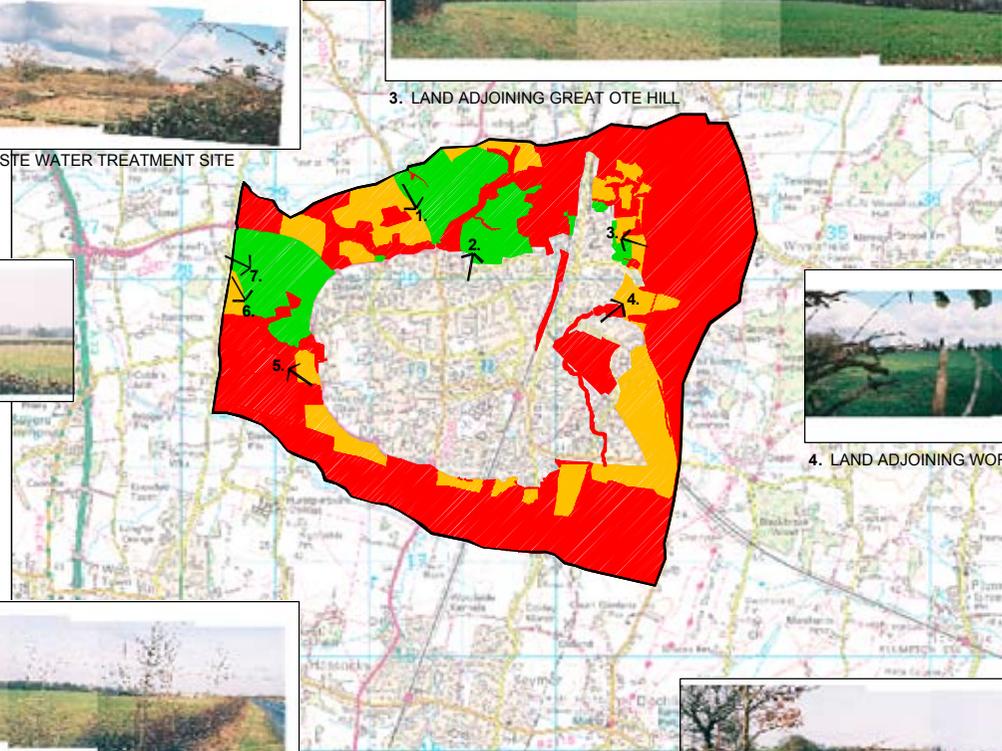
3. LAND ADJOINING GREAT OTE HILL



2. VIEW OF FORMER WASTE WATER TREATMENT SITE



7. LAND AT GODDARDS GREEN



4. LAND ADJOINING WORLD'S END



6. LAND ADJOINING THE A2300 AT GODDARDS GREEN

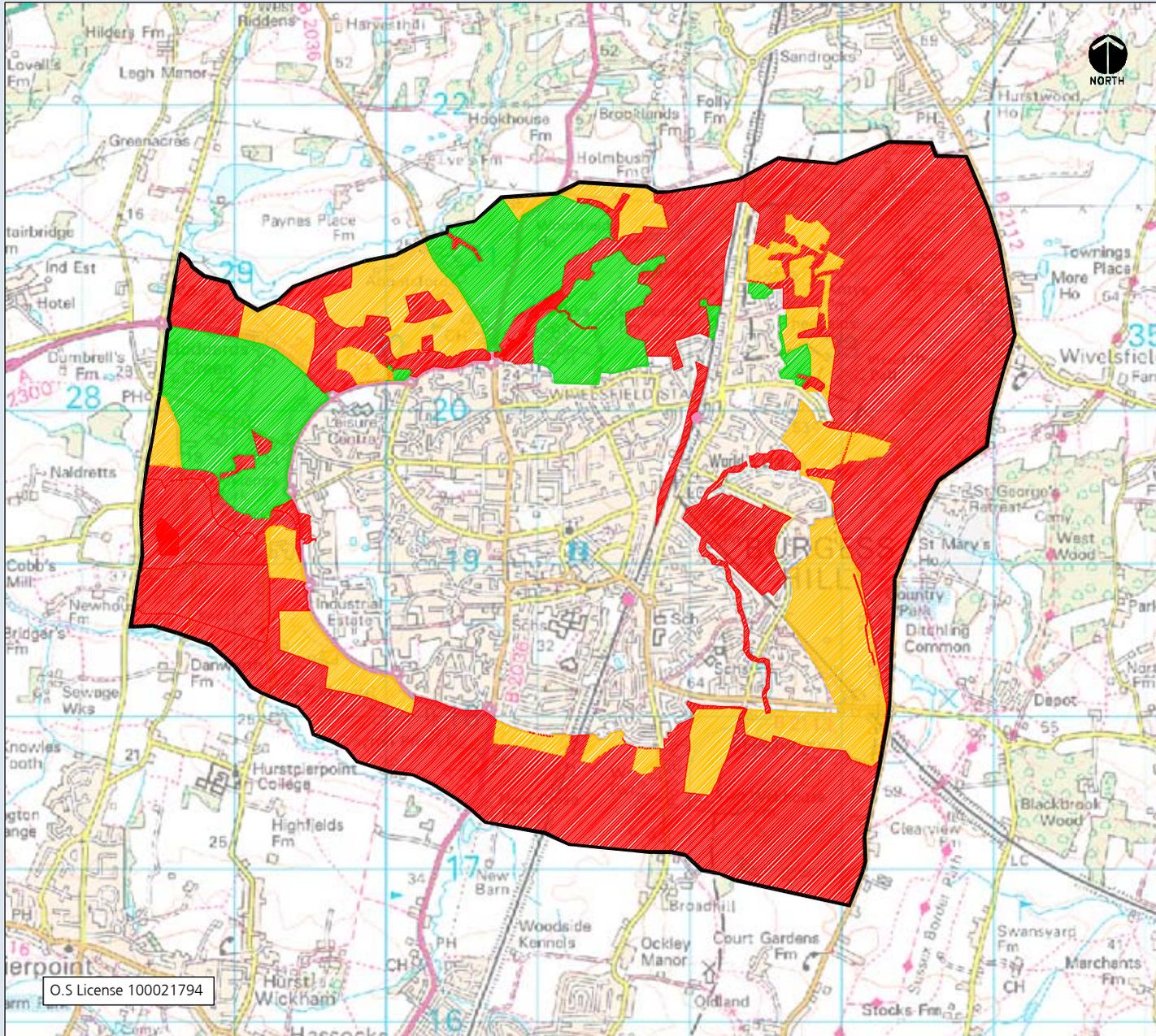


5. LAND TO THE SOUTH OF OAKLANDS PARK

Burgess Hill Feasibility Study
Photos of Developable Areas

Figure 3.6
Scale: 1:25,000 @ A3





-  REFINED SEARCH AREA BOUNDARY
 -  LAND UNSUITABLE FOR DEVELOPMENT*
 -  POTENTIAL DEVELOPABLE AREA WITH APPROPRIATE MITIGATION
 -  POTENTIAL DEVELOPABLE AREAS
- *Flood plain areas included

Burgess Hill Feasibility Study
Potential Developable Areas
 Figure 3.7
 Scale: 1:35,000 @ A3



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3.5 Potential Developable Areas

Figure 3.7 provides the composite information from the landscape and ecological assessment to provide a clear indication of land which is considered suitable for development, land which has potential for development subject to appropriate mitigation and land unsuitable for development. Up to date floodplain information has been taken into account.

3.7 Transportation – Existing Conditions

Key demographic indicators suggest Mid-Sussex has the highest rail mode share for journeys to work compared to other districts in the area and the joint highest public transport mode share. This suggests that the overall public transport market in Burgess Hill is reasonably healthy.

Existing bus services in Burgess Hill are comprised of ‘town’ services and ‘infrequent rural’ services. The town services themselves consist of inter and intra urban routes, while the rural routes exist primarily to link the small villages to locations such as Burgess Hill. Burgess Hill also has two rail stations: Burgess Hill and Wivelsfield rail stations are connected to Gatwick, London Bridge, Bedford, Watford and Brighton. Additionally, Wivelsfield is connected to Hastings and Lewes. It is notable that at present there is no direct off peak service from either station to London Victoria. Residents of Burgess Hill can also access Haywards Heath station.

Burgess Hill lies to the east of the A23 Trunk Road, which connects to the M23 south of Crawley and provides a north-south route between the M25 and the south coast (Brighton). The town is connected to the A23 via the A2300.

All highway links in Burgess for which data is available show a degree of saturation less than 90% in 2016. This is a positive result and indicates that, depending on junction capacity constraints, some reserve link capacity might be present on the highway network.

Existing on-site observations suggest that traffic congestion in Burgess Hill is low and is concentrated around key junctions such as those on the A273 and B2036 during Peak Periods (See Figures 3.8 and 3.9). The number of east-west highway links in Burgess Hill is low and such links are concentrated in the north of the town, due to the severing affect of the railway in the south.

3.8 Utilities

Water Supply

Burgess Hill falls within South-East Water supply area. Principle water resources in the north of Sussex are surface water, stored in reservoirs at Ardingly and Weir Wood.

The 198-acre Ardingly reservoir impounds Ardingly and Shell Brooks in the headwaters of the River Ouse. South East Water abstract directly from the reservoir and also control releases into the river for compensation and to augment the river flow for a further abstraction just above Barcombe.

Weir Wood Reservoir, to the south of East Grinstead, covers 280 acres and was created by damming the source of the River Medway.

In recent years Southern Water has worked in conjunction with Portsmouth Water to transfer water from Littleheath Reservoir to Hardham Water Supply Works (south of Pulborough). This work has targeted releasing supplies to meet growing demand in the north Sussex supply area.

The existing Water Tower to the south of the town will most likely require augmenting with additional Service Reservoir capacity. Sites in its vicinity would best be supplied directly from this source.

For other sites around the town, South East Water will need to appraise the capacity of the existing network to support growth and instigate reinforcement works as necessary.

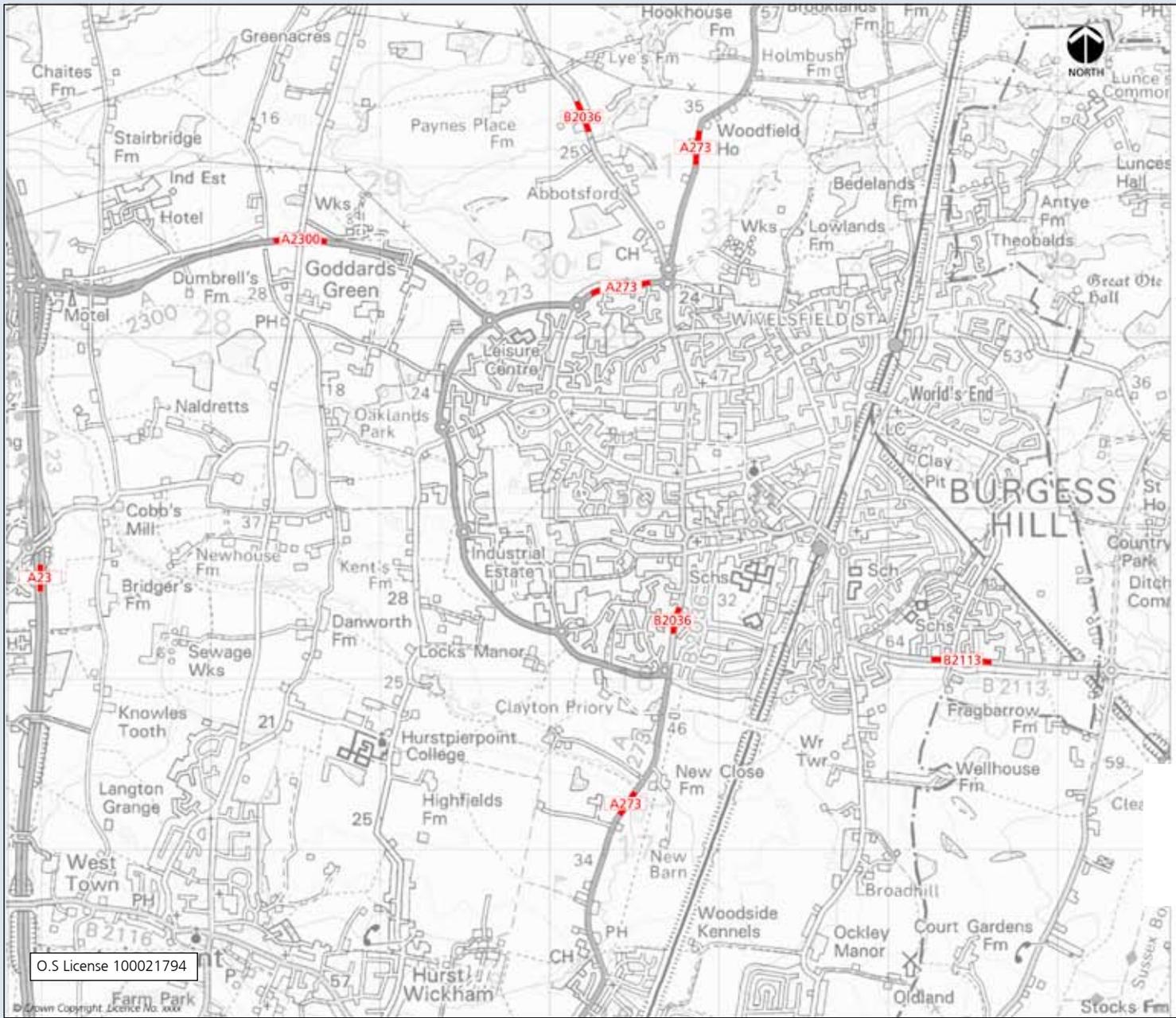
Waste Water Treatment

Burgess Hill receive wastewater services from Southern Water. Wastewater is collected at a terminal Pumping Station (on the site of the old Burgess Hill Sewage Treatment Works) and is pumped to Goddards Green Sewage Treatment Works (STW) to the west of the town.

Goddards Green STW was commissioned in the early 1990’s and receives flows from Burgess Hill, Hurstpierpoint and Malthouse Lane pumping stations. The treatment works was designed with a capacity to treat 35,000m³ of wastewater per day. Goddards Green STW provides treatment to tertiary levels (effluent is ‘polished’ through sand filtration) before discharging in to the River Adur.

The existing Goddards Green STW is relatively new and capable of extension to accommodate additional flows. The proposed development of Burgess Hill would represent approximately a 7% increase in wastewater flows. Additional land would have to be procured for plant uprating that would be required and a very stringent ammonia standard is likely to be imposed for the works.

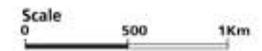
As all flows are pumped to Goddards Green STW, sites in proximity to existing Pumping Stations will be considered favourable. It is anticipated that some works will be required to increase pumping capacity, but being new assets it is considered that these will be practical.



Burgess Hill Feasibility Study
Existing Highway Network

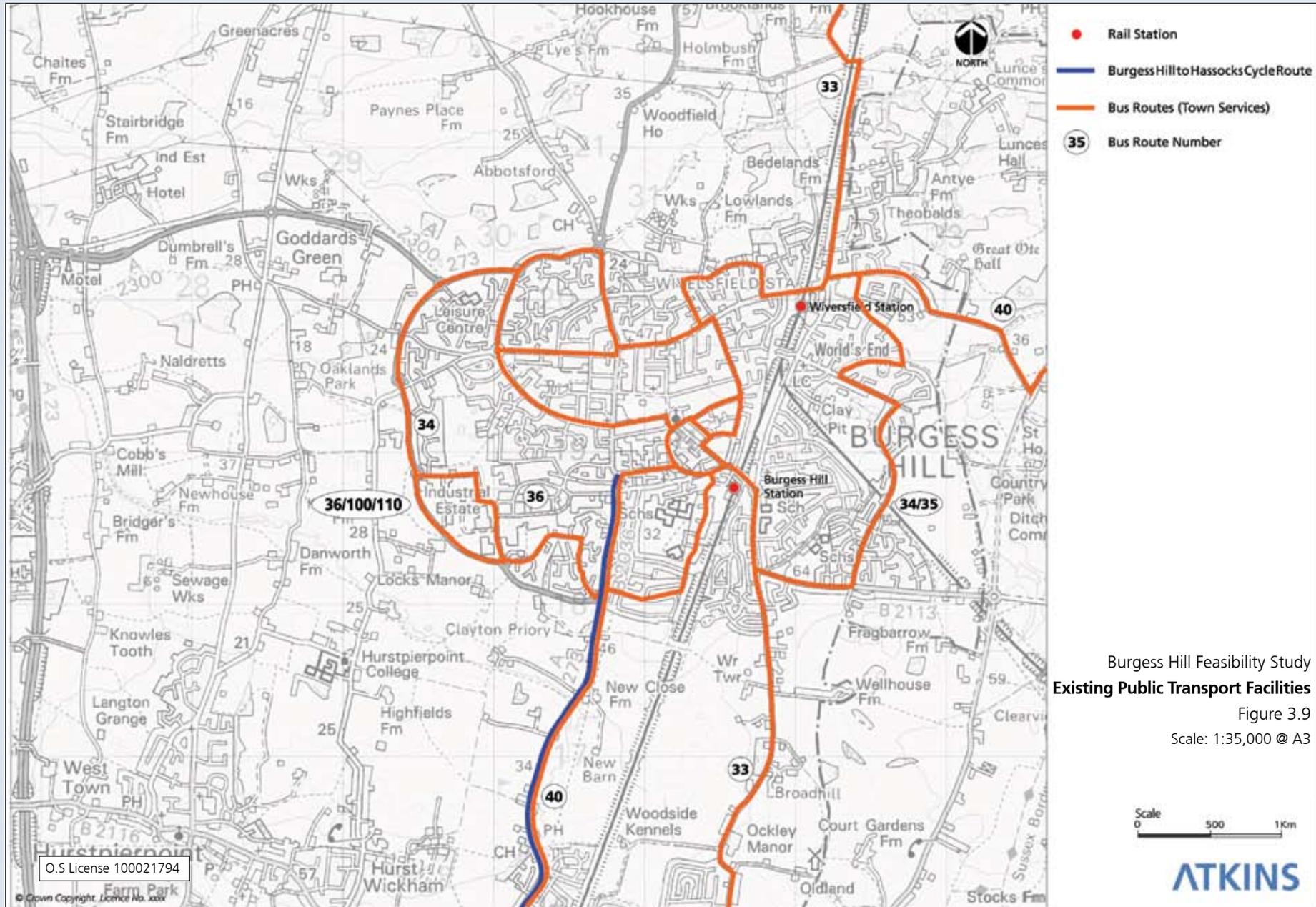
Figure 3.8

Scale: 1:35,000 @ A3



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Burgess Hill Feasibility Study
Existing Public Transport Facilities

Figure 3.9

Scale: 1:35,000 @ A3

Sites to the east of the town are relatively isolated and it is unlikely that existing sewers through the town will be capable of accepting large increases in flow. As such these areas would most likely need to become separate catchments, pumped into existing strategic pumping stations.

Electricity

Burgess Hill is supplied via a main transformer to the west of the town. This will provide an 11 kV network to local transformers around the town.

Due to the proposed distribution of developments around the town, it is anticipated that spare capacity in the existing distribution network will be the primary means of supplying electricity. In places there will be requirements for substantial reinforcement of the network, and where sufficient concentrations of new development are permitted these can be serviced through new HV (11kV) ring mains and local transformers.

It is anticipated that there will be requirements for works in the existing Primary Sub-station on the western edge of the town.

Gas

The primary source of gas is via a high-pressure main from the north. From a pressure reducing device in London Road, medium pressure mains distribute gas to supply areas across the town.

Transco have stated that they do not plan beyond a 10-year horizon for future demands upon their systems. This short term planning reflects the robustness of the gas network and relatively few limitations upon the systems. There is not anticipated to be any restrictions upon the ability to supply gas to new developments.

It is anticipated that new medium pressure mains will be required to supply any new developments.

Commentary on Utility Industry and future provisions

Ofgem (The Office of Gas and Electricity Markets) has an Environmental Action Plan which sets out a programme of work to help promote renewable energy and energy efficiency. This includes:

- Energy Efficiency Commitment which requires all suppliers to run schemes aiming at improving the energy efficiency of customers homes
- Renewables Obligation which sets a target for electricity suppliers to source at least part of their electricity from renewable generation
- Climate Change Levy exemption for renewable generators, and
- Climate Change Levy exemption for good quality CHP.

Ofgem is also working on encouraging electricity distribution companies to strengthen their networks to allow for inclusion of Distributed Generation (also known as 'Embedded Generation'). This is electricity generation, which is connected to the distribution network rather than the high voltage transmission network. It is often small-scale, but seen as crucial to expanding the use of renewable power (wind and solar power) and Combined Heat and Power.

Distributed Generation

Today's distribution networks have been built to deliver power from the national transmission network to the end customer. Distributed generation, however, requires more active distribution networks which allow electricity to flow in two directions – to the electricity

user for consumption in homes or businesses, and also to export surplus energy back to the transmission network. Consequently, to date renewable generators have found it difficult and expensive to connect. However, if planned for in advance there will be opportunity to include such systems in future large scale developments.

Ofgem aim to increase the use of Distributed Generation and are proposing regulatory measures. The objectives are: (1) to allow generators the option of spreading the cost of connecting to the distribution network; (2) making it easier for domestic Combined Heat and Power generators (customers who have heating systems which can generate electricity) to connect to the networks by establishing a standard connections procedure; and (3) reimburse distributed generators some of the initial connection fee when subsequent generators are connected.

Types of Distributed Generation are:

- Wind power – experiencing growth and becoming more efficient;
- Central heating boilers (domestic CHP) – although not yet commercially available, they are highly energy efficient;
- Combined Heat and Power – local power stations, from which excess heat is recovered for local heating systems;
- Photovoltaic solar cells – which can be built into the roofs of homes.

It is envisaged that within the horizon for the feasibility study that the above systems will be economically practical for inclusion in new developments and should be encouraged by inclusion within Local Area Plans and potentially included as planning requirements.

Electricity Supply

De-regulation of the electricity industry has seen the introduction of competition to supply electricity to consumers. This superficial service provision over-lays the Distribution Network Operators and Electricity Generation companies.

In the south-east of England EDF Energy is the Distribution Network Operator (DNO). They are obliged to provide and install assets necessary for the connection of premises to its distribution network, and they are entitled to make a charge for doing so.

Gas Supply

De-regulation of the gas industry has also been introduced to reflect the systems introduced for the Electricity Industry. For the Gas Industry it is Licensed Gas Suppliers who provide the front-line service to consumers and Gas Transporters who are licensed to transport gas through pipes. Gas Transporters also have a duty to provide connections to premises where it is economical to do so. In the south-east of England Transco is the licensed Gas Transporter.

The Gas Act 1986 (as amended) places further obligations upon Gas Transporters (GT):

- For domestic premises within 23 metres of a relevant main a GT is obliged to connect premises and provide and install assets necessary for the connection of the premises. The GT is entitled to make a charge for providing this service although the GT will pay the costs of installing the first 10-metres of pipe in the public highway. These obligations are varied in the following circumstances:
- Infills – this is where existing premises in an area are connected to a new main laid under regulations allowing the GT to determine

connection charges at the beginning of the scheme and to apply similar charge to all connection requests in respect of that main for a maximum period of the subsequent twenty years.

- Supplemental connection charge areas – this is where the GT has been authorised by Ofgem to recover the cost of connecting premises in a specified area from gas shippers to those premises, over a fixed period of time, rather than directly from the owner / occupier of the premises.
- For premises outside of 23-metres (or high consumers) the GT, whilst still under duty to supply, may quote and charge for connection.

Gas consumption is set to rise with population growth. However, tighter regulations on energy efficiency for new build properties will undoubtedly see consumption per household reduce.

Telecommunications

Information Communications Technology (ICT) is probably the most rapidly developing global sector and it would be difficult for anyone to make useful predictions regarding the demand and use of ICT beyond a five year horizon.

There are widespread plans for development and housing across the whole of the South East of England. As such the sustainability of any development will depend on its ability to meet the demands of its residents. It is anticipated that these demands will include first class telecommunications services, using current best practice and technology, telecommunications services and ICT products that match the very best available in the world.

Some commentators see the ability to home-work via broadband circuits as one solution to combat increasing levels of traffic congestion on roads,

workplace stress and the need for more flexible working arrangements (e.g. the challenges faced by those with child care responsibilities). They see the provision of broadband telecommunications services to homes as a necessary precursor to developing a better work/life balance for many people.

Furthermore, despite public anxiety over safety, recent advances and growth in popularity of mobile telephone technology has progressed at tremendous pace and seems set to feature amongst future demands. Matching these demands against public perceptions will require careful planning.

It seems certain that the demand for these telecommunication services will be met in the near future. It is also expected that there will be an increase in the use of fibre optic connections direct to users, which are expected to have adequate capacity for the foreseeable requirements of industry as well as domestic markets.

The use of high quality ICT systems for security are also expected to be amongst the feel good factors for producing sustainable developments in the future. Monitored intruder systems on premises, together with public area CCTV systems can all be easily accommodated in today's technology and their inclusion in future developments will be cost dependant. If planned for these costs can be minimised and it is recommended that the inclusion of such measures be considered for incorporation to Local Area Plans and subsequent planning requirements.

Conclusion - Utilities

The following demands have been estimated for Water, Sewerage, Gas and Electricity:

Table 3.2 Utilities demand for proposed development near Burgess Hill.

| Utility | Utility Provider | Estimated Demand 5000 houses |
|-------------|------------------|---------------------------------|
| Water | South-east Water | 2.3 MI/day |
| Sewerage | Southern Water | 2,400 m ³ /day |
| Electricity | EDF Energy | 15 MW |
| Gas | Transco | 3,000 m ³ /hr |

Given sufficient notice and investment all utilities can be provided to all sites. However, physical and environmental constraints will significantly affect the level of investment required. Location, capacity of existing services and physical obstructions were taken into account in the evaluation of site options.

Part II – Findings of the Interim Report

4. Evaluation of Feasibility and Delivery Options

Site development options were identified from the potential developable areas. These areas were measured to illustrate land which would accommodate approximately 5000 dwellings. The calculation of potential numbers of dwellings was based on 30 dwellings per hectare. This is an approximate gross density which takes account of a range of a mix of low to high densities, internal roads and community facilities including a primary school.

Options A and B (Figure 4.1) illustrate the potential to accommodate 5,000 dwellings in one area. Option C (Figure 4.2) demonstrates the potential of distributing this requirement around Burgess Hill.

5. The Preferred Option

An evaluation of the key issues for each of the Burgess Hill site options was undertaken to allow for ease of comparison between sites. This information has been summarised in table 4.1 below. More detailed evaluation is included within the Interim Report.

Burgess Hill is a small town with one centre. New development could benefit the town by making existing services and facilities more efficient and viable through increased contributions and usage. However, providing all the housing requirement (3,500 – 5,000 dwellings) within one site will reduce the benefits to the town centre as new facilities and services will be provided to serve the residents of the new development (see Options A and B in Figure 4.1).

Distributing new development around the east of the urban area will enable the provision of a new eastern spine road/bypass and enhancements to existing public transport, pedestrian and cycle routes benefiting existing

residents in this area (see Option C in Figure 4.2). Contributions from all developments could be used to improve existing community facilities. Increased usage of these facilities would improve their viability.

Due to the size of the sites within Option C it is proposed to locate the majority of new employment close to the existing employment areas and strategic road network to the west. There is also the potential of having some residential development in this area to improve the quality and viability of any new development to the west (C1).

Options A and B are large sites which extend well beyond the catchments of existing services and facilities. The visual and traffic impacts of one development of 5,000 dwellings are likely to be significant. Due to their size, both site options result in potential coalescence issues with areas beyond Burgess Hill.

Figures 4.3 and 4.4 illustrate key transport infrastructure requirements. They also identify the results of an evaluation exercise which looked at the accessibility of each site. This exercise is explained in more detail in Volume 2.

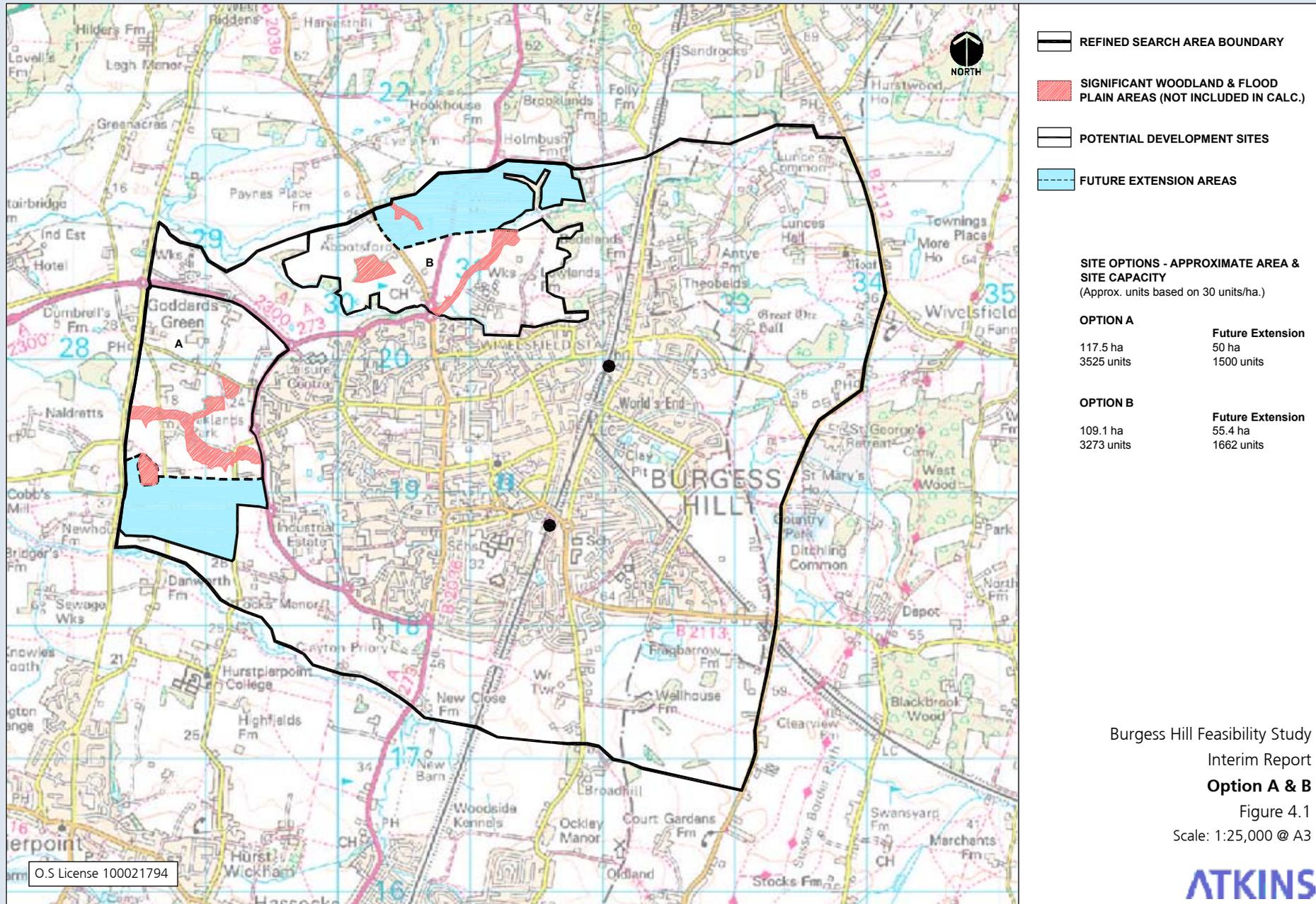
Figure 4.4 demonstrates that Option C would require an eastern spine road to link the developments and provide improved highway access to the town centre from the east of Burgess Hill.

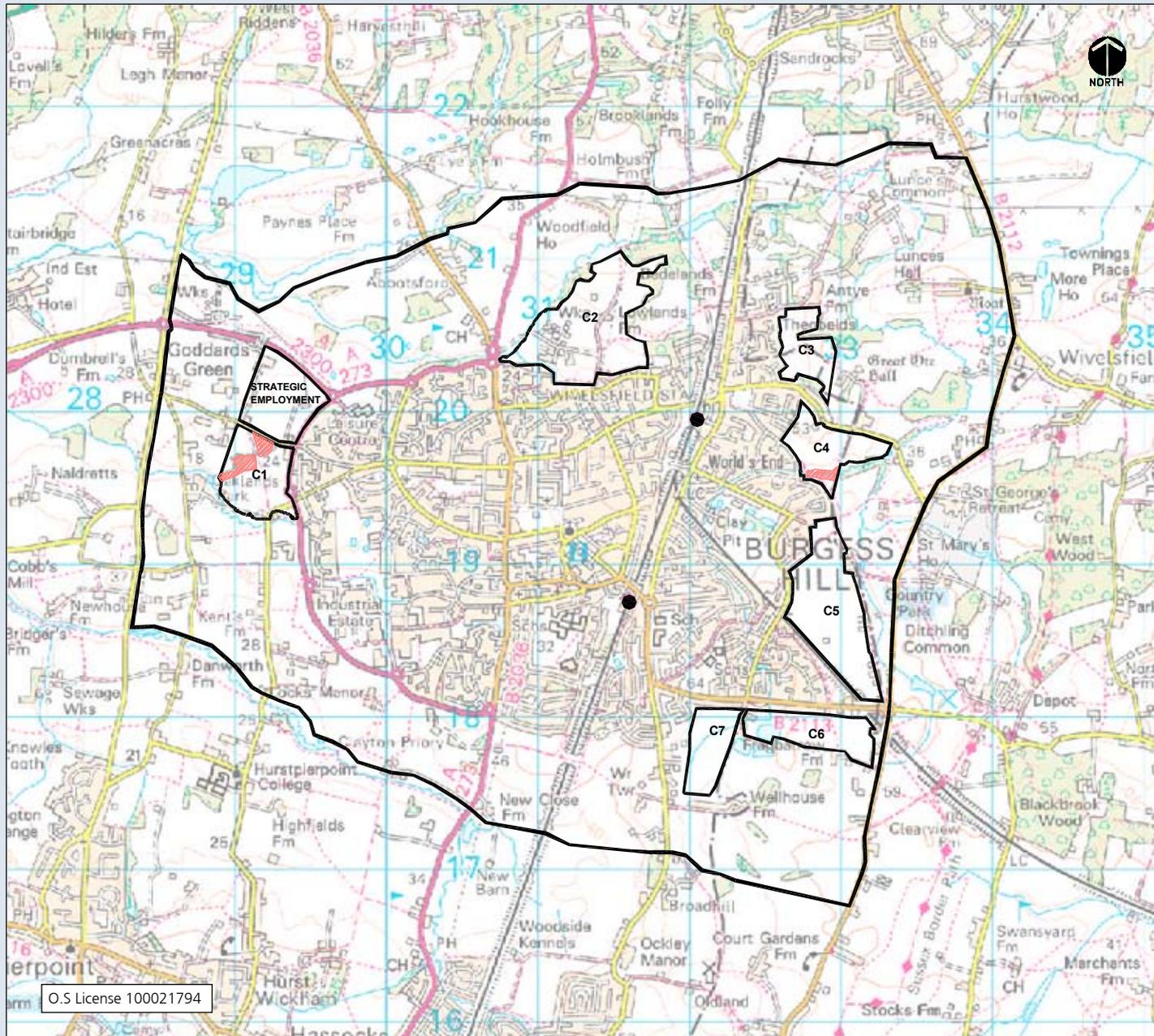
Option C was considered to be the most sustainable option for new development. However, it is dependent on the implementation of an eastern spine road/bypass which will result in significant infrastructure costs. The feasibility and financial viability of this option is discussed below.

Chapter 6 develops the analysis of Option C further resulting in a refinement of site boundaries, capacities and the alignment of the eastern spine road.

| Criteria/ Potential | Problematic | Conditional | Ok | Priority |
|------------------------|--|--|---|--|
| Option A | Furthest option from town centre and closest to A23. Option would comprise self contained communities which may reduce potential for integration with existing urban area. Limited potential to improve viability of existing services through financial contributions and increased usage. Future extension area extends south close to Hurstpierpoint and likely to be sensitive to views from South Downs | | Highest Transport and Accessibility score compared to Option B and overall Option C (C1 and C2 higher scores) without proposed new eastern spine road. Second highest with road. No significant transport or utilities infrastructure costs | |
| Option B | Provision of self contained communities would limit potential for integration with existing urban area. Limited potential to improve viability of existing services through financial contributions and increased usage. Future extension area extends north close to Haywards Heath | Lowest Transport and Accessibility Score. Utilities investment required to bring water to site | | |
| Option C | | Option C dependent on eastern spine road/bypass which has significant cost implications and potentially significant impact on SNCI | Significant Utilities infrastructure investment (especially C2-C5) due to capacity of electricity and gas and physical obstructions which hinder servicing of water to sites | Highest transport score with proposed new road, second highest without it (although sites C1 and C2 perform best as individual sites). Good integration with existing urban area. Provision of eastern spine road/bypass. No coalescence issues. Previously developed land (C2). Contribute towards existing services and facilities. Increased viability of existing services |

**Table 4.1 - Burgess Hill Evaluation
(Interim Report)**





- REFINED SEARCH AREA BOUNDARY
- SIGNIFICANT WOODLAND & FLOOD PLAIN AREAS (NOT INCLUDED IN CALC.)
- POTENTIAL DEVELOPMENT SITES
- FUTURE EXTENSION AREAS

SITE OPTIONS - APPROXIMATE AREA & SITE CAPACITY
(Approx. units based on 30 units/ha.)

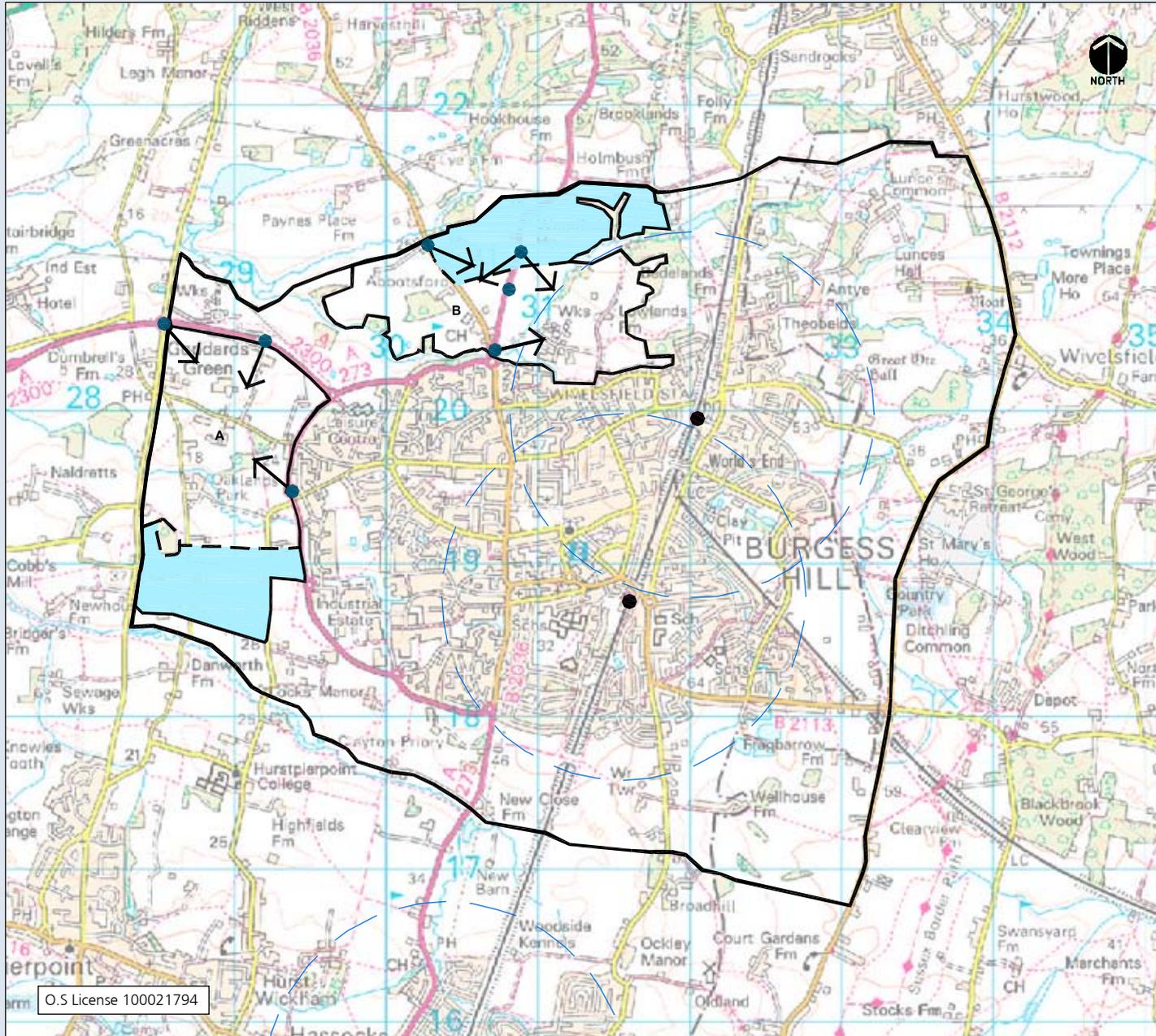
| | |
|---|---|
| OPTION C1 19.3 ha 579 units | OPTION C2 47.2 ha 1416 units |
| OPTION C3 13.9 ha 417 units | OPTION C4 16.8 ha 504 units |
| OPTION C5 38.1 ha 1143 units | OPTION C6 18.8 ha 564 units |
| OPTION C7 14.4 ha 432 units | |

TOTAL: OPTIONS C1 - C7
168.5 hectares
5055 units

Burgess Hill Feasibility Study
Interim Report
Option C
Figure 4.2
Scale: 1:25,000 @ A3



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- Existing Stations
- Connections
- 1.2km (15 min walking catchment around existing stations)

| RANK | SITE | SCORE |
|------|--|-------|
| 1. | Option A - West End Farm | 20 |
| 2. | Option C - Seven Sites around Burgess Hill | 19* |
| 3. | Option B - Abbotsford and Lowlands Farm | 18 |

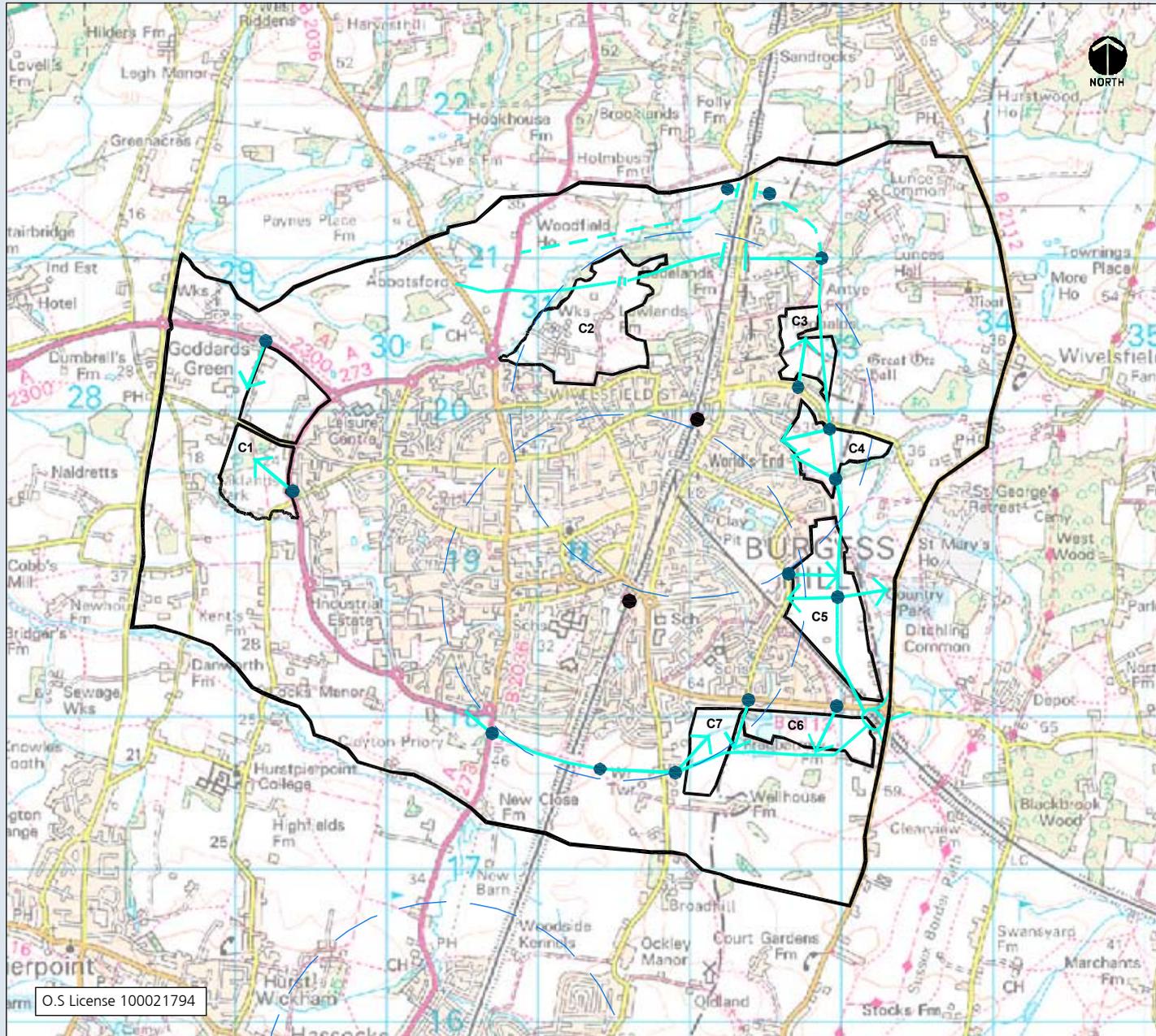
* Option C is composed of seven sites with the following scores:

| | |
|-------------|----|
| Option C1 - | 22 |
| Option C2 - | 22 |
| Option C3 - | 19 |
| Option C4 - | 19 |
| Option C5 - | 16 |
| Option C6 - | 20 |
| Option C7 - | 16 |

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Burgess Hill Feasibility Study
Interim Report
**Strategic Site Selection Evaluation:
Transport & Accessibility -
Option A & B**
Figure 4.3
Scale: 1:35,000 @ A3





- Existing Stations
- Connections
- 1.2km (15 min walking catchment around existing stations)
- Indicative Eastern Spine Road (Interim Report Alignment)

| RANK | SITE | SCORE |
|------|--|-------|
| 1. | Option A - West End Farm | 20 |
| 2. | Option C - Seven Sites around Burgess Hill | 19* |
| 3. | Option B - Abbotsford and Lowlands Farm | 18 |

* Option C is composed of seven sites with the following scores:

| | |
|-------------|----|
| Option C1 - | 22 |
| Option C2 - | 22 |
| Option C3 - | 19 |
| Option C4 - | 19 |
| Option C5 - | 16 |
| Option C6 - | 20 |
| Option C7 - | 16 |

Burgess Hill Feasibility Study
 Interim Report
**Strategic Site Selection Evaluation:
 Transport and Accessibility
 - Option C**
 Figure 4.4
 Scale: 1:35,000 @ A3



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Part III – Site Capacity

6. Site Layouts and Development Schedules

6.1 Site Layouts

Following consultation with the Steering Group on the Interim findings there was a consensus to take forward Option C for further more detailed analysis. Site area boundaries were refined in light of new information and further site visits and the capacity of each site was calculated based on indicative site layouts. Figure 6.1 illustrates the location of the Option C sites and the Link Road alignment, an indicative layout for each site is illustrated in Figures 6.2 to 6.5. Layouts for sites C3 to C7 demonstrate how the link road could be incorporated to serve each site.

A development schedule identifying the mix of land uses and total number of dwellings is included in table 6.1 below.

6.2 Identification of Social and Community Infrastructure

The land budgets for each master plan have been informed by an assessment of the social and community infrastructure needs associated with 5,000 dwellings and a target population of approximately 10,650 people (based on ONS projection of 2.13 persons per dwelling in 2016). An assessment has been made of the additional land and floorspace requirements covering employment needs, local retailing, education facilities, primary healthcare infrastructure, open space and indoor recreation facilities to support such a community post 2016. The findings of this assessment are included as an Annex to this document and summarised below.

The assessment considers the requirements relating to each land use in total followed by a schedule identifying the sizing of sites and the balance of uses required to support each site. The schedule represents a target land use mix which has informed the masterplanning process.

6.3 Indicative Land Budget

Based upon overall community and infrastructure requirements for the total target population the proposed schedule of facilities has been distributed between the seven sites. The allocation of facilities between the sites has been based upon the following principles:

- To maximise the opportunities afforded by additional facilities provision;
- To promote sustainable patterns of service delivery; and
- To promote sustainable movement patterns with each parcel and the town as a whole.

Analysis of existing social and community infrastructure provision shows that the eastern side of the town is not well served by existing facilities particularly relating to secondary education and neighbourhood retailing. Therefore, we have also sought to locate facilities to maximise the benefits to existing communities where possible.

| Land Use (Ha)/Site | C1A | C1B | C2 | C3 | C4 | C5 | C6 | C7 | TOTAL |
|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Education | | | 1.3 | | 8.2 | 1.3 | | | 10.7 |
| Indoor Sports Centre | | | 0.1 | | | 0.1 | | | 0.2 |
| Open Space | 0.0 | 7.1 | 9.1 | 5.2 | 2.1 | 8.4 | 2.8 | 3.7 | 38.4 |
| Local Centre | | | 0.2 | | | 0.4 | | | 0.6 |
| Residual Developable Area | 0.0 | 20.0 | 29.4 | 15.5 | 6.6 | 26.7 | 9.5 | 11.6 | 119.4 |
| Total Area | 21.3 | 27.0 | 42.6 | 20.7 | 17.0 | 37.0 | 12.3 | 15.3 | 193.2 |
| No. Dwellings | | | | | | | | | |
| High Density (50dph) | 0 | 400 | 588 | 310 | 133 | 534 | 190 | 233 | 2388 |
| Med Density (40dph) | 0 | 320 | 470 | 248 | 106 | 428 | 152 | 186 | 1910 |
| Low Density (30dph) | 0 | 120 | 176 | 93 | 40 | 160 | 57 | 70 | 716 |
| Total Dwellings | 0 | 840 | 1234 | 651 | 279 | 1122 | 399 | 489 | 5014 |

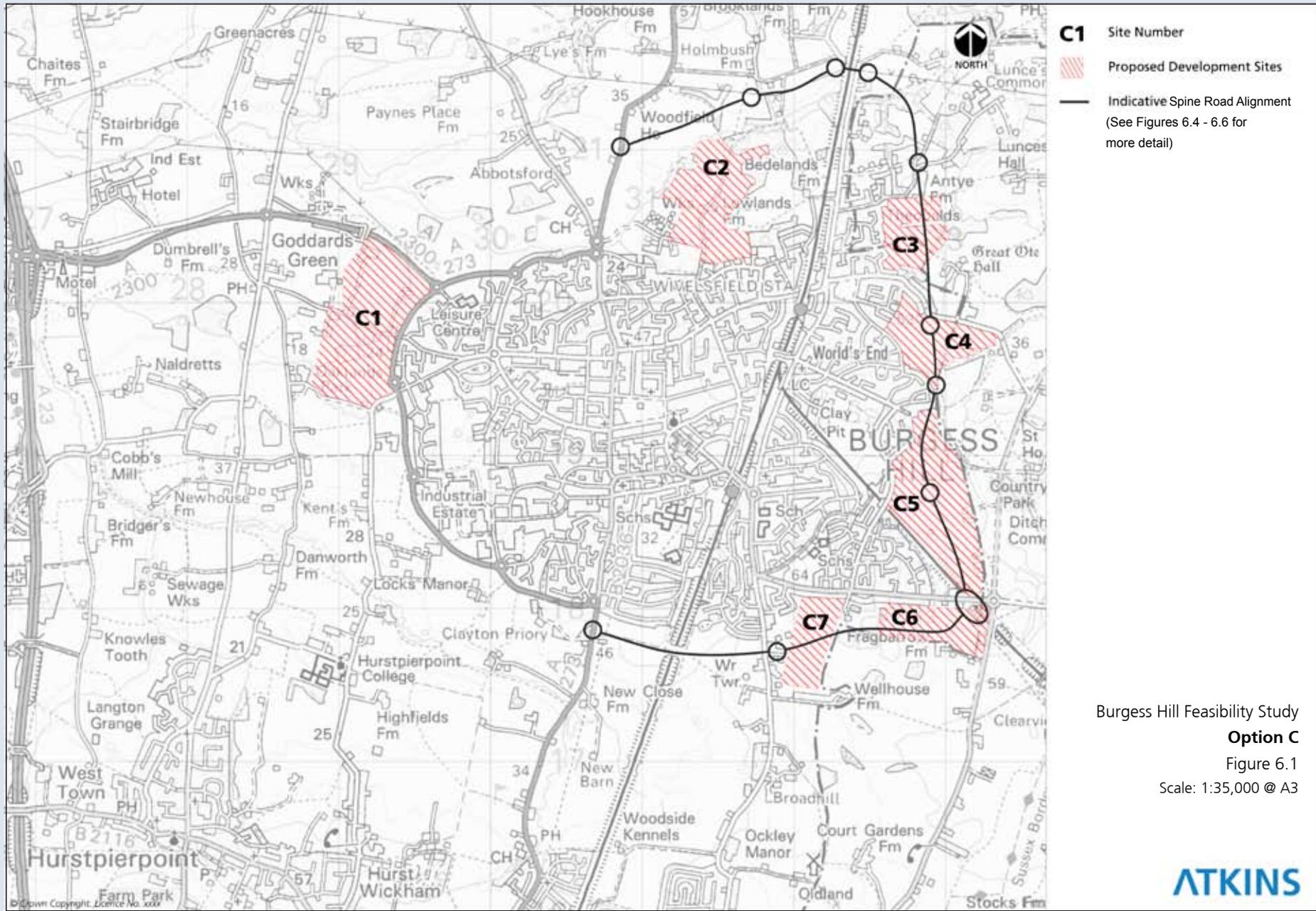
Table 6.1 Development Schedules

The rationale for the location of each use is as follows:

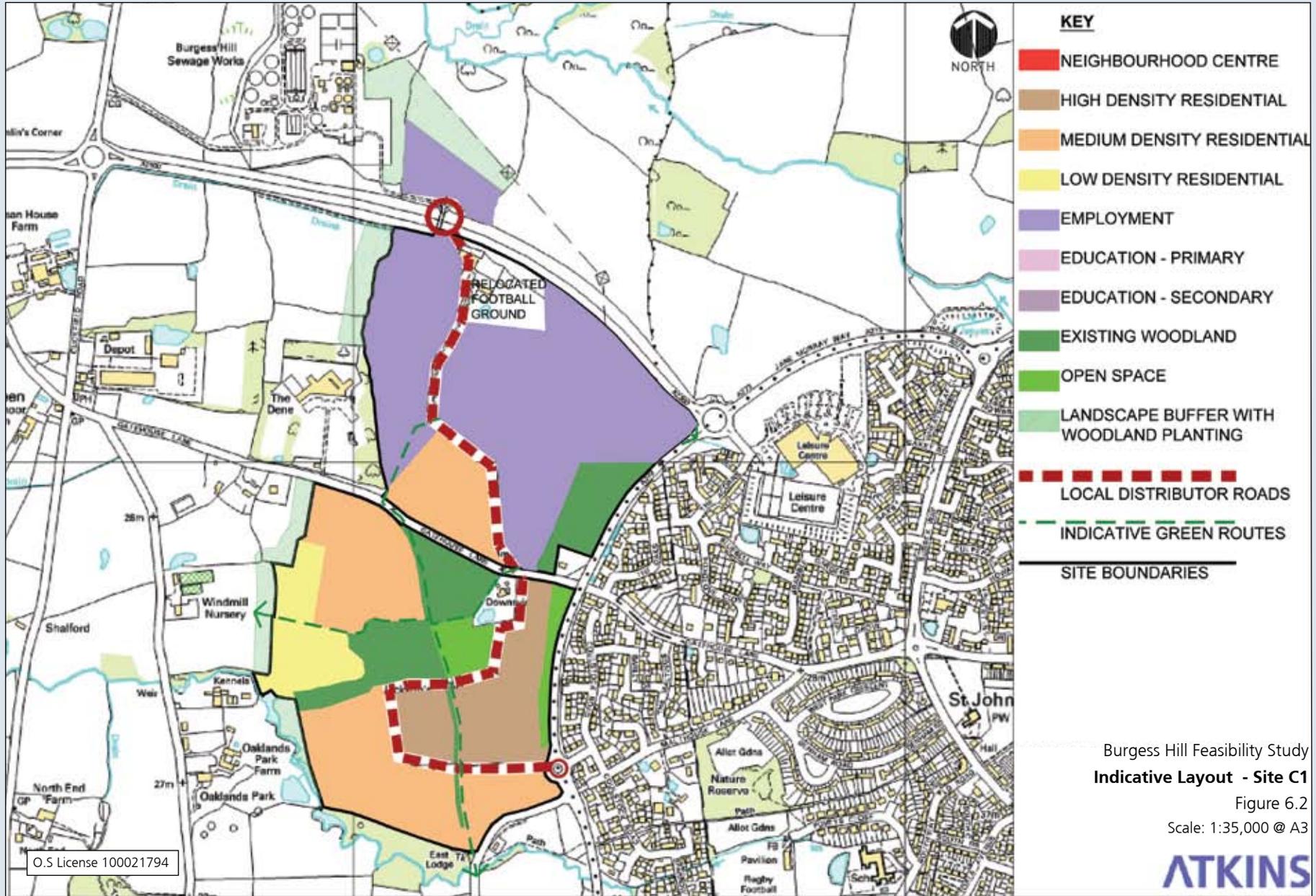
- The neighbourhood centre is split between the two largest sites to maximise the walk up catchment population for each centre, the health facility is co-located within the centre in site C5;
- The Secondary school is located within site C3, this is to centrally locate the school within the east of the town, to maximise access to the majority of the planned development and to enable access to/from proposed bus routes and Wivelsfield station. The primary schools are proposed within sites C5 and C2 this is to maximise the local walk up catchment to each school and to sustain the viability of existing schools which serve the west of the town.
- Open space has broadly been planned in proportion to the population of each site.
- The residual B class employment land has been provided in one block as part of parcel C1A. Of all of the locations identified this location represents the best in terms of access to the A23.

6.4 Housing Density Balance and Capacity Estimate

After accounting for community infrastructure needs and distributor roads the residual land has been planned for housing development. The housing density mix for each sites has been based upon a mix of 30% low density (30 dwellings/ha), 40% medium density (40 dwellings/ha) and 40% medium-high density (50 dwellings per ha). The rationale is to provide a range of dwelling types and sizes within each site. The distribution of medium and high density has been concentrated around the neighbourhood centre and along bus routes in order to maximise access and the viability of these services. Low density development has been located around more environmentally sensitive areas within sites and adjoining the countryside edge to soften the visual impact of development.



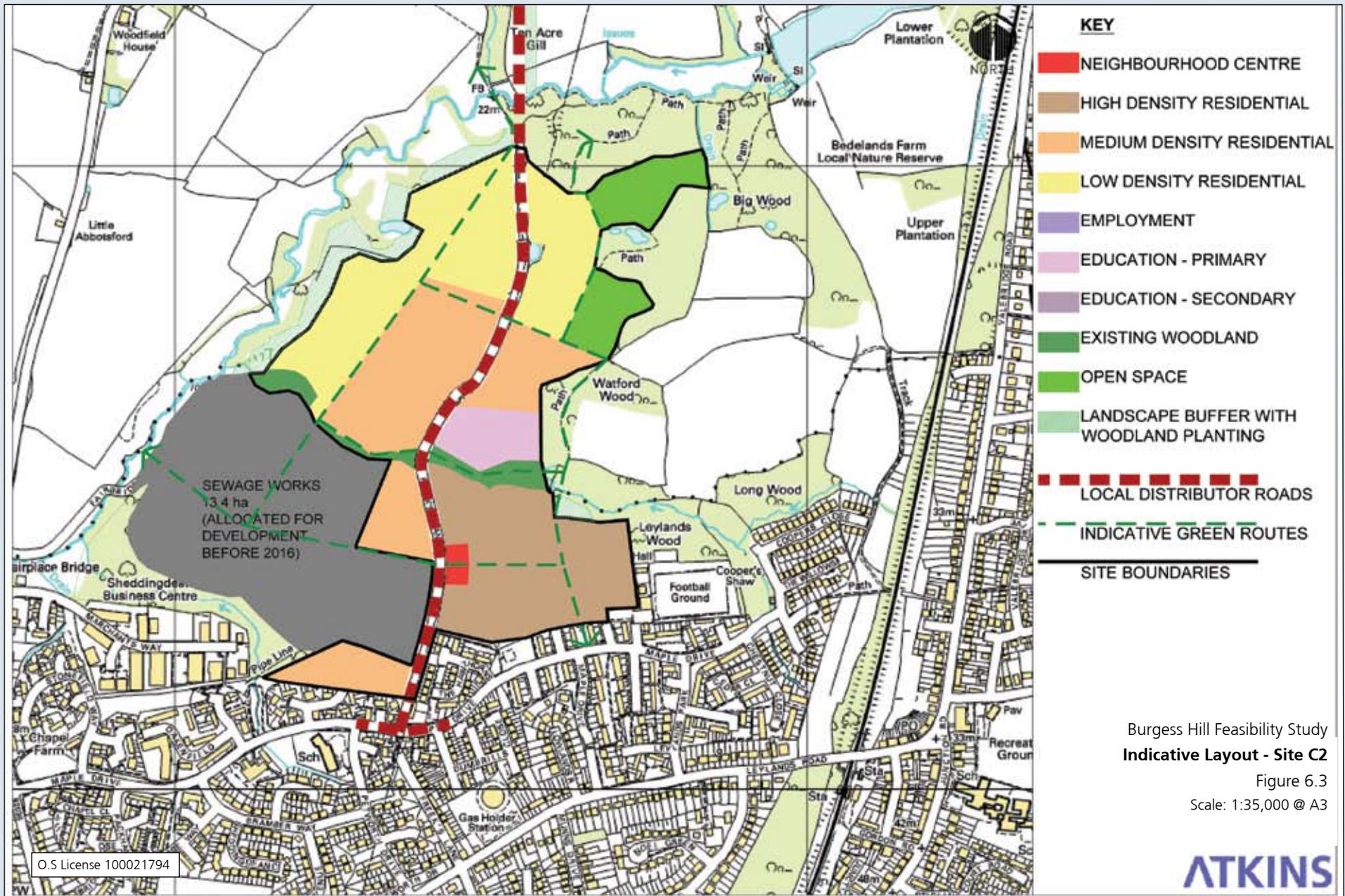
Burgess Hill Feasibility Study
Option C
 Figure 6.1
 Scale: 1:35,000 @ A3



Burgess Hill Feasibility Study
Indicative Layout - Site C1
 Figure 6.2
 Scale: 1:35,000 @ A3



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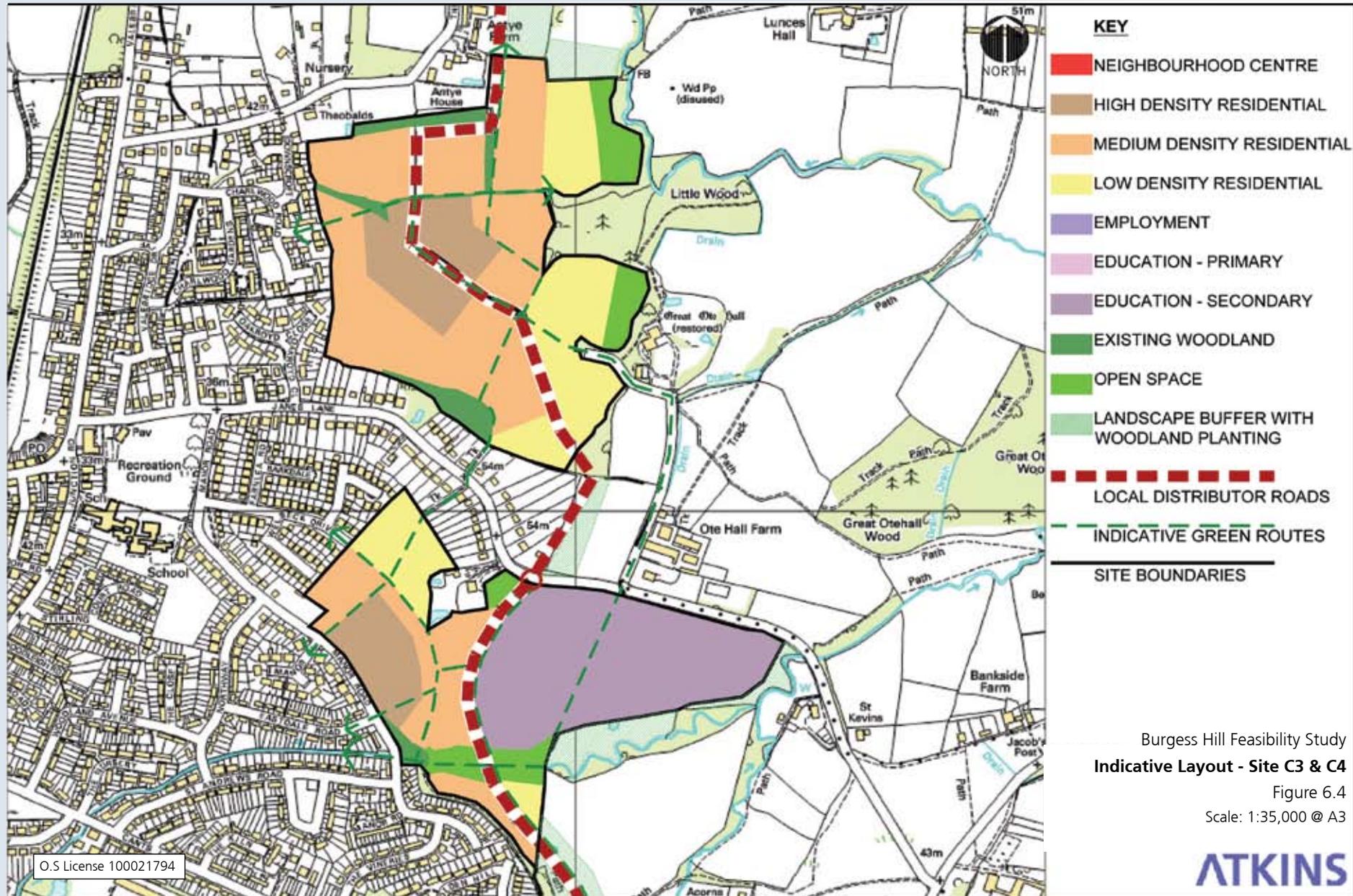


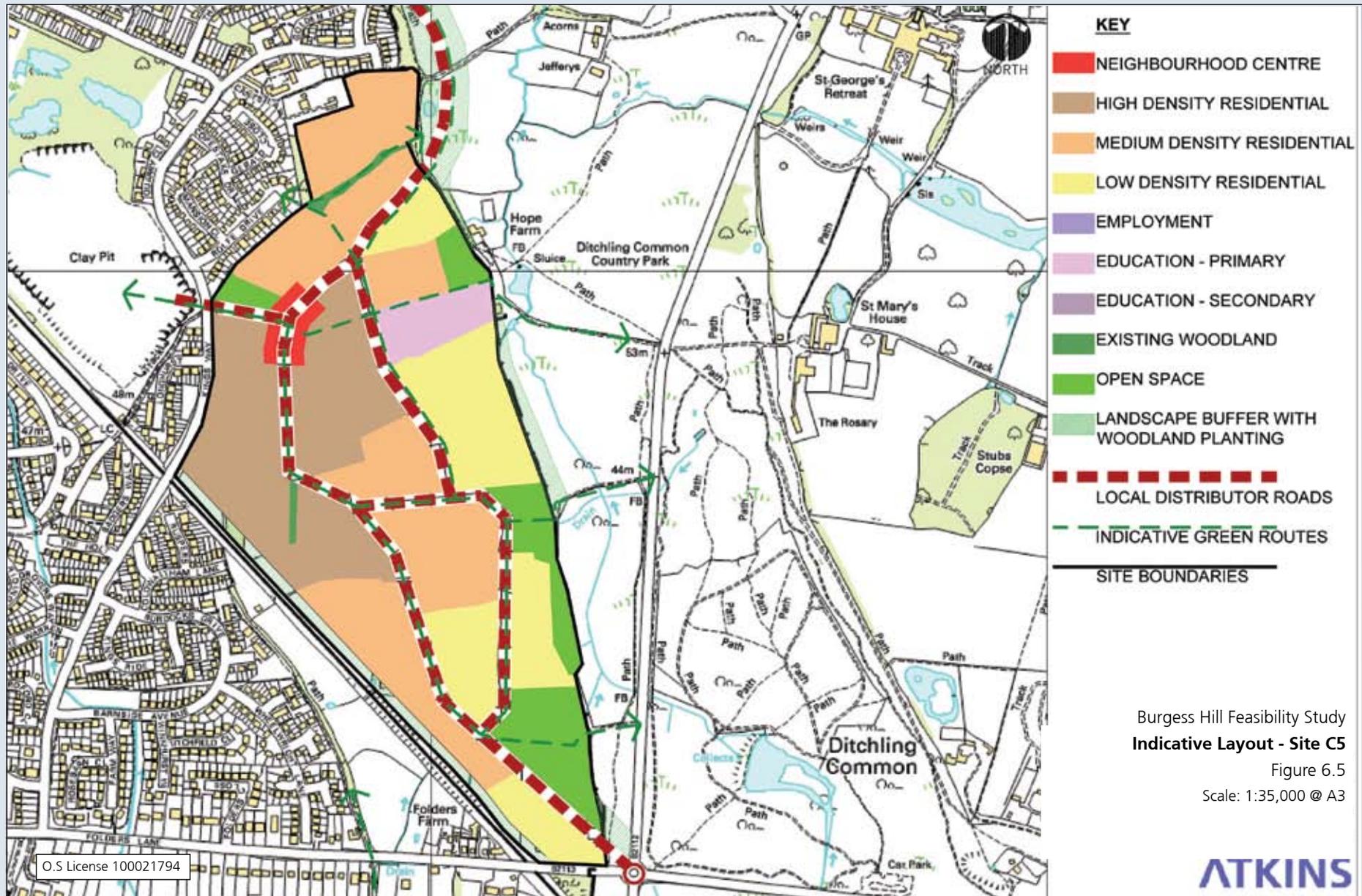
Burgess Hill Feasibility Study

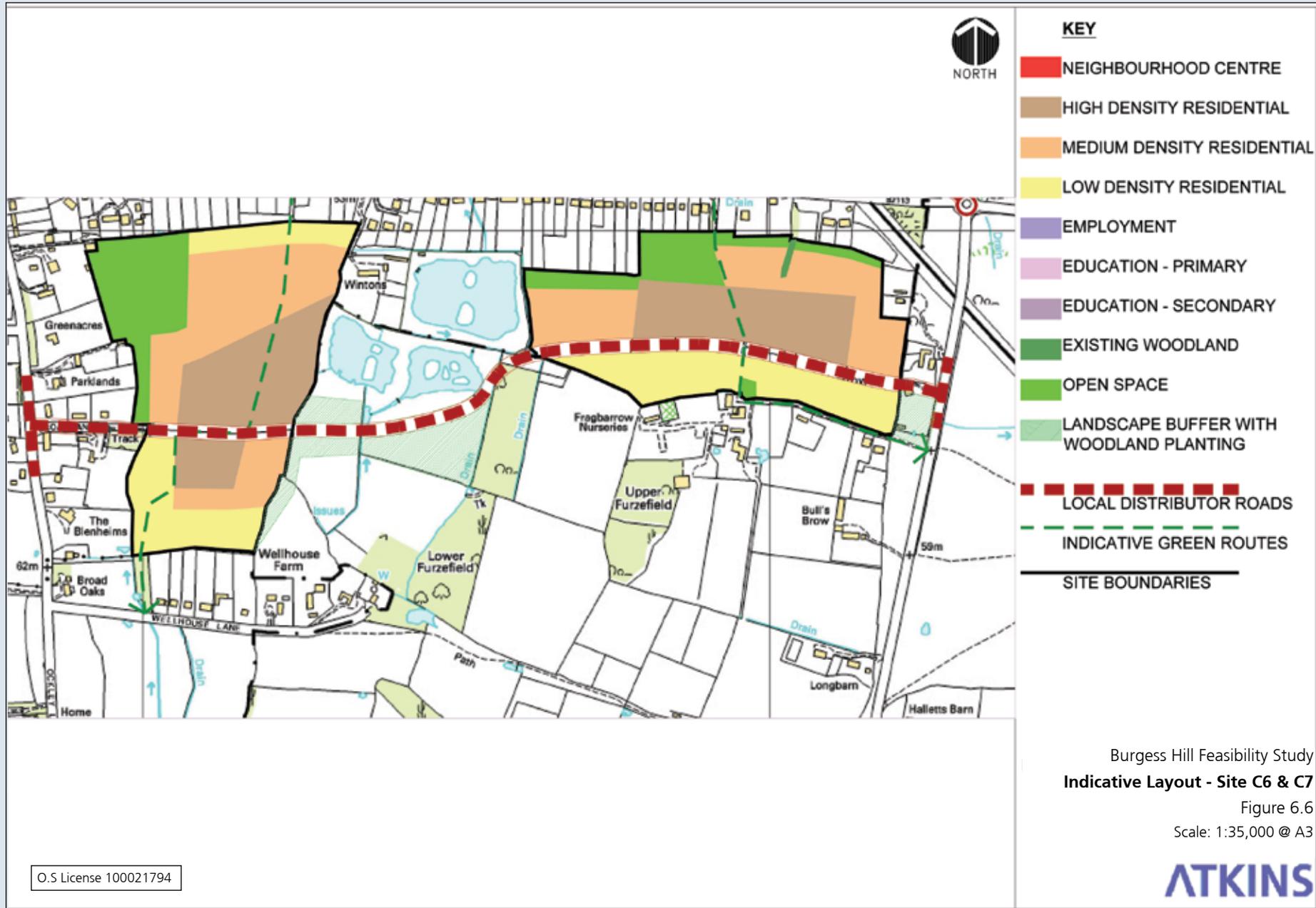
Indicative Layout - Site C2

Figure 6.3

Scale: 1:35,000 @ A3







| Urban Design Considerations | Option C1 – West End Farm | Option C2 – Lowlands Farm | Option C3 – Theobolds | Option C4 – World’s End | Option C5 – Freckborough Manor | Option C6 – Fragbarrow Farm | Option C7 – Wellhouse Farm |
|--|--|---|--|---|--|--|--|
| Access including transport links between sites | Site is closely related to both the A2300 and A273, requiring short connections to the site and therefore reducing the impact of additional highway infrastructure upon the wider landscape. | This site requires access via Freaks Lane from the proposed spine road. There would be wider landscape and visual impacts associated with this route beyond the site area, to accommodate the links to the proposed wider road network. | The spine route sits centrally within the site. It should be designed to reduce traffic speeds with integrated design of public realm and traffic management measures to promote east-west movement within the site. Wider landscape and visual impacts would be associated with link road. | This site requires access via the proposed spine road connecting the sites on the eastern side of Burgess Hill. There would be wider landscape and visual impacts associated with this route beyond the site area. The spine route is proposed centrally north-south through the site. Consideration needs to be given to integrated public realm and traffic management measures to allow ease of movement between Burgess Hill and the proposed residential areas and secondary school. | The access to this site has been illustrated as a loop route, connecting the site with the committed development at the Clay Pit and the adjacent residential areas to the west. This would enable these adjoining areas to use the neighbourhood centre and secondary school facilities. East- west movement across the site is constrained by the railway, which forms the south-western site boundary. Wider landscape and visual impacts would be associated with link road. | Access to this site from the rest of Burgess Hill is constrained by the adjoining residential areas. The proposed spine road would open up the site. Opportunities for cycle and pedestrian access to the town centre. | Access to this site from the rest of Burgess Hill is constrained by the adjoining residential areas. The proposed spine road would open up the site. Opportunities for cycle and pedestrian access to the town centre. |
| Integration with the countryside edge | Existing site vegetation integrates the proposed housing with the countryside edge. The western edge of the site however would benefit from off-site planting to integrate the proposed development with the adjoining agricultural landscape. | The proposed extent of development is contained within woodland adjoining the watercourse which bounds the north west and eastern site boundaries. | This site context and adjoining areas offer the potential to integrate the site within the landscape structure of the countryside edge, however additional woodland planting is recommended to reinforce the Great Ote Hall Estate landscape. The development should address the countryside edge with frontage rather than the rear of plots. | The eastern portion of this site (where the secondary schools is proposed) is a fairly open landscape. School buildings should be located towards the residential western portion of the site to retain the open character of this countryside edge. | The indicative layout shows low density housing and open space adjacent to Ditchling Common. An assessment of the potential impacts of this development on the integrity of this SSSI will need to be undertaken (see para 3.3). | While the site is contained, the transition of the countryside character of land to the south adjoining and within the South Downs National Park should be considered. | While the site is contained, the transition of the countryside character of land to the south adjoining and within the South Downs National Park should be considered. |

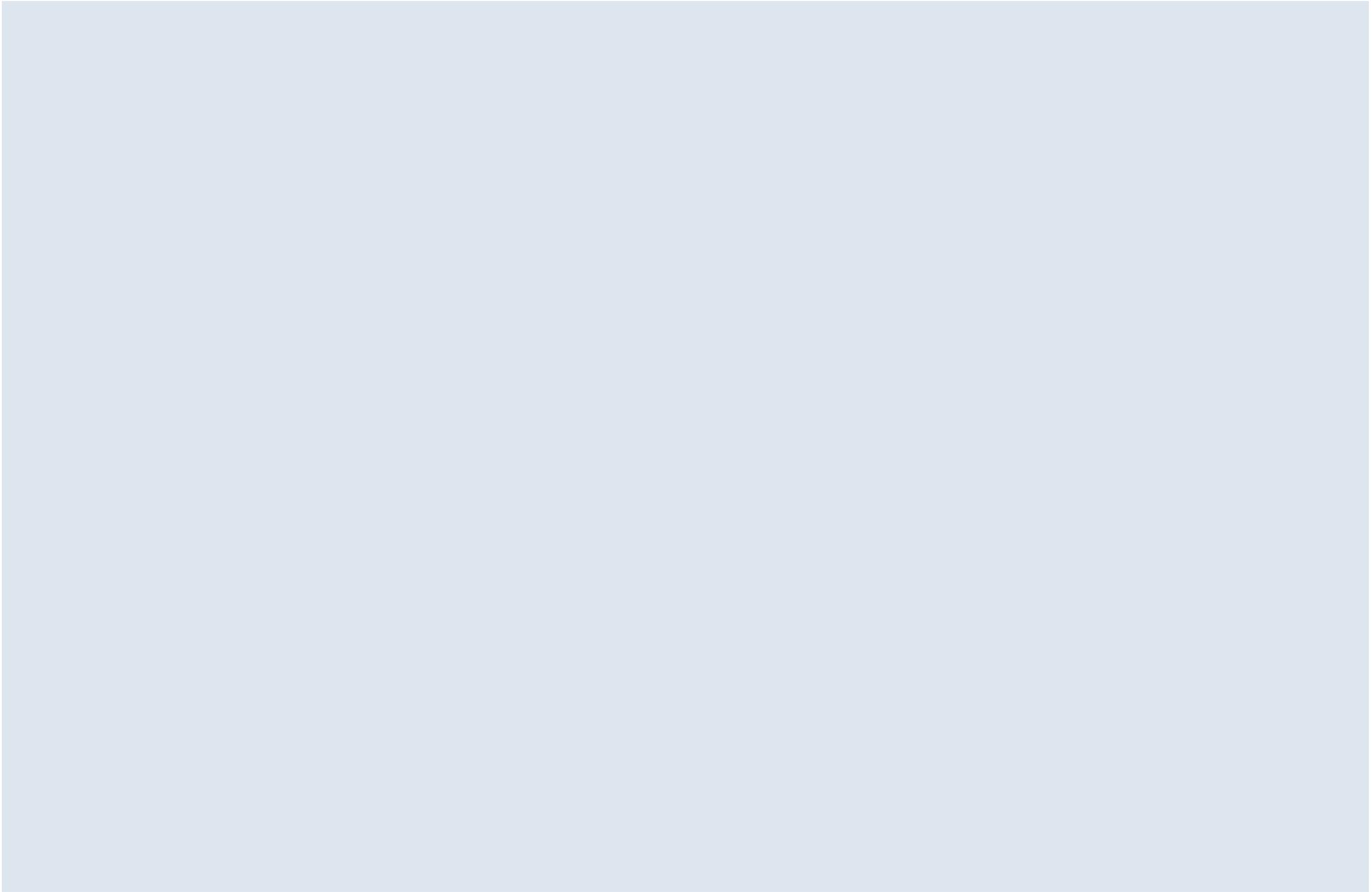
Table 6.2 - Urban Design Considerations

FEASIBILITY STUDY FOR DEVELOPMENT OPTIONS AT BURGESS HILL

| Urban Design Considerations | Option C1 – West End Farm | Option C2 – Lowlands Farm | Option C3 – Theobolds | Option C4 – World's End | Option C5 – Freckborough Manor | Option C6 – Fragbarrow Farm | Option C7 – Wellhouse Farm |
|--------------------------------------|---|--|--|--|--|--|--|
| Integration with the settlement edge | The site adjoins the settlement edge, however the A273 may be perceived as a physical barrier to east-west movement between the site and Burgess Hill. | The site adjoins the northern edge of the existing settlement and therefore proposed facilities and open space could serve the existing communities. The density, scale and form of the proposed development along the southern edge of the site should relate in scale and form to the adjoining residential areas. | The site adjoins existing residential areas to the west and therefore could be integrated via pedestrian links. The density, scale and form of the proposed development along the western edge of the site should relate to that of the adjoining residential areas. | The western portion of the site adjoins existing residential areas along its west, north and southern edges. The road layout of the adjoining residential areas could be connected to the proposed site layout. The density, scale and form of development along the west, north and southern edges should relate to the scale and form of these adjoining residential areas. | The rail line does provide a barrier to integration however the proposed link road which would pass through this site would facilitate access to the rest of Burgess Hill. The proposed development would adjoin the existing settlement and there are opportunities for pedestrian and cycle access to the town centre. | The site adjoins relatively low density residential areas to the south east of Burgess Hill and would need to incorporate an appropriate landscape buffer to protect the adjoining residential areas. | The site adjoins relatively low density residential areas to the south of Burgess Hill and would need to incorporate an appropriate landscape buffer to protect the adjoining residential areas. |
| Landscape structure | A strong existing pasture landscape structure with existing woodland blocks and tree belts. There may be some requirement for some further planting to locally screen development on the western edge of the proposed site. | The site is set within a strong existing landscape structure made up of a series of small-scale arable fields and public open spaces adjoining the northern settlement boundary. Consider impact upon local landscape amenity including agricultural land and Burgess Hill Golf Course. | Site comprises attractive pasture with fields of small to medium size bound by managed hedgerows, which will require reinforcement in areas. Considerations to be given to impact upon the wider attractive landscape character of Great Ote Hall and the adjoining residential settlement edge of Burgess Hill. | Considerations should be given to impact upon the attractive landscape surrounding of Great Ote Hall and the existing residential settlement edges adjoining the western and south western boundaries. | Site is made up of pasture with a series of small scale fields the character of which should be incorporated into the site layout. | Mix of land uses, smaller scale paddocks, market gardens, contained employment sites and pockets of low density residential. Some existing urbanising influences. The southern edge of this site defines a transition from mixed land use edge of Burgess Hill to the more open agricultural land associated with the South Downs foot hills. Reinforcing this edge could help define the settlement edge while providing an attractive setting for the development. | The land within this site is unmanaged agriculture. The southern edge of this site defines a transition from the outermost low density residential edge to the more open agricultural land associated with the South Downs foot hills. |
| Visual impacts* | There would be visual impact upon dwellings within the immediate vicinity of the site, from the Public Rights of Way and views from Danworth Lane and some impact on medium distance views. | The views into this site would be ameliorated by the existing landscape structure. Views of the site are possible from B2036, A273, a Public Right of Way, which passes along Freaks Lane and through Bedlands Farm and the northern residential edge of Burgess Hill. | There will be some visual impact upon adjoining residential areas. Consideration needs to be given to the planting, to enhance the setting of Great Ote Hall. | There will be some visual impact upon the views from properties, Public Rights of Way crossing and bordering the site and the impact upon the landscape setting of Great Ote Hall. | The visual influence of this site is limited to the south and west by the rail line. Views from Freckborough Manor, Pollards Farm will require consideration. | Consideration required to mitigate impact upon long distance views from the South Downs. | Further consideration required to establish the impact upon long distance views from the South Downs. |

| Urban Design Considerations | Option C1 – West End Farm | Option C2 – Lowlands Farm | Option C3 – Theobolds | Option C4 – World’s End | Option C5 – Freckborough Manor | Option C6 – Fragbarrow Farm | Option C7 – Wellhouse Farm |
|--|--|--|--|---|--|--|---|
| Visual Impacts (cont) | | Some wider visual impacts may be associated with the link road which can be ameliorated with localised woodland planting and ground modelling. | Some wider visual impacts will be associated with the link road to the north and south of the site which can be reduced with localised woodland planting. | Some wider visual impacts will be associated with the link road to the north and south of the site which can be reduced with localised woodland planting. | Some wider visual impacts will be associated with the link road to the north and the new junction to the south of the site which can be reduced with localised woodland planting. | Some visual impact may be associated with the link road between Option site C5 and C6, which can be reduced with woodland planting. | |
| Pedestrian/cycle links and Public Rights of Way, | Footpath connections can be connected into a number of existing Public Rights of Way and an east-west connection can be made via Gatehouse Lane. | The existing north-south lane, Freaks Lane, can provide a direct connection from the site to Burgess Hill town centre. | Opportunity exists to connect the existing residential neighbourhood via footpaths east-west to Public Rights of Way which pass through Great Ote Hall and Antye Farm. | Public Rights of Way crossing the site should be incorporated into the site layout, thus promoting access towards Wivelsfield and Ditchling Common Country Park (subject to assessment of impact on Ditchling Common SSSI). | Public Rights of Way, crossing the site east-west offer the potential to connect the site to Ditchling Common Country Park (subject to assessment of impact on Ditchling Common SSSI). | Potential to connect to the Public Right of Way which passes Folders Farm and runs south to connect with Fragbarrow Nursery access. More widely there is potential to connect to make new connections towards the railway station. | Opportunity to connect site to Well House Lane and beyond to Public Right of Way leading towards Clearview Farm and the Sussex Border Path. |
| Built and Natural Heritage | Setting of listed building will need to be preserved and enhanced with off-site planting along the western boundary of the site. | No listed buildings within site. Consideration of SINC site adjoining the eastern edge of the site. | Consider setting of Great Ote Hall as discussed above. | Consider setting of Great Ote Hall as discussed above. | No impact on areas of significant cultural heritage value. An assessment of the potential impacts of this development on the integrity of this SSSI will need to be undertaken (see para 3.3). | No impact on areas of significant cultural heritage value. | No impact on areas of significant cultural heritage value. |
| Flood plain | The southern boundary of the site adjoins the floodplain of the Pook Bourne. Sustainable urban Drainage System (SuDS) may be sought by EA. | The northern and western boundary adjoins the floodplain extending north from Fairplace Bridge along the watercourse. EA may seek SuDS. | The north eastern edge of the site adjoins the floodplain of a minor watercourse to the east of the site. EA may seek SuDS. | Flood plain for a minor watercourse bisects the southern edge of the site. EA may seek SuDS. | No floodplain considerations. | No floodplain considerations. | No floodplain considerations. |

*While site surveys have evaluated the relative visual impacts of development upon the whole landscape area within the study area, detailed masterplanning should be informed by further assessment to fully establish impacts and mitigation measures



Part IV – Transport Impacts

7. Summary of Transport Analysis Report

Volume 2 presents the analysis of transportation needs and impacts. Measures are identified to improve the accessibility of potential development by modes other than the private car as accommodating necessary private car trips. This chapter summarises the findings of this analysis.

Development Potential

A site assessment framework has been developed to provide a preliminary assessment of options for strategic development in Burgess Hill. The site assessment framework tables formed the basis of a detailed trip generation, distribution and assignment exercise. Only one option has been assessed for the Burgess Hill area. This option is composed of the following sites:

- Site C1: located to the west of the A273;
- Site C2: located to the north of Burgess Hill;
- Site C3: located to the west of Burgess Hill, neighbouring existing residential areas, north of Janes Lane;
- Site C4: located to the west of Burgess Hill south of Janes Lane;
- Site C5: located to the west of Burgess Hill adjacent to the Lewes Railway line;
- Site C6: located to the south of Burgess Hill south of the B2112; and
- Site C7: located to the south of Burgess Hill east of Oakley Lane.

Development Trip Generation

A multi-modal trip generation spreadsheet was developed using 2001 Census Data and National Travel Survey (NTS) data for the period 1998-2000. The trip

generation and distribution exercise comprised the following stages:

- Stage 1: Trips per Household;
- Stage 2: Trips by Journey Purpose;
- Stage 3: Internal Trips;
- Stage 4: Site Trip Attraction;
- Stage 5: Modal Share by Journey Purpose;
- Stage 6: Total External Trips by Journey Purpose and Mode;
- Stage 7: Total Internal Trips by Journey Purpose and Mode; and
- Stage 8: Distribution of External Trips by Journey Purpose and Mode.

This process provided the total number of AM peak, PM peak and daily multi-modal trips generated by each development site option. The trips were distributed to each ward in Burgess Hill and four external zones (north, south, east and west).

The development trips were then manually assigned to the highway network and a public transport passenger load, patronage and revenue estimation was undertaken. The major sources of demand for public transport services and highway trips are as follows:

- North of Burgess Hill;
- Meeds Ward (contains the town centre); and
- Dunstall Ward (contains a high proportion of residential units and Wiversfield Station).

This pattern is similar to that displayed for public transport trips. This is due to the location of trip attractors within the Burgess Hill area and outside the area (i.e. many work trip attractors are north of the town as well as within the town centre).

Development Impact and Mitigation

Traffic Assignment and Impact

In order to support the development of Option C an eastern spine road will need to be constructed linking to A273 Jane Murray Way and passing through sites C3, C4, C5, C6 and C7.

It should be noted that the proposed link road alignment in Figure 6.1 (and Figures 7.1 - 7.2) represents one solution to linking the development sites and other alignments may be possible. For example the south-eastern section of the Link Road could pass through Site C5 and connect to the existing Kingsway, rather than B2112/B2113 roundabout. However the development of this option would need to consider the impact on the B2113/Kingsway junction and how the link road would be connected to site C7.

In order to determine the impact of the development site options, trips by car have been assigned to the highway network. The assignment flows represent demand flows, i.e., the route the traffic would ideally take if capacity was available. In addition a link capacity analysis has been undertaken by adding development flows to existing traffic data for the Burgess Hill area. The results are summarised in Table 7.1.

Public Transport Assessment

Forecasts of future public transport demand from the development sites have been made separately and these were used in developing the public transport system. Analysis of the key demands indicated that all sites would benefit from connections to Burgess Hill town centre as well as the north west area of town (containing the Triangle Centre) and the south west area of town (containing Tescos). The greatest demand for 'external' trips (beyond the Burgess Hill area) are to the north (includes destinations such as Haywards Heath, Gatwick, East Croydon and London).

The forecast public transport demands from the development sites are sufficient to sustain a number of new bus routes and thus two bus network options were proposed. These both link all the sites with the town

centre and provide – in most cases – a direct link with Tesco and the Triangle Centre. Where a direct link has not been proposed the key destination can be accessed with one interchange. Service frequencies have been proposed for the networks based on demand levels during the peaks, and a minimum service level of 4 buses per hour in the off Peak Periods.

The lower levels of demand for rail services and the greater constraints facing changes to this mode mean that comparable rail proposals have not been developed. However, the key changes proposed to rail services in the Network Rail Route Utilisation Strategy most likely to benefit developments in Burgess Hill have been noted:

- A half hourly peak and off peak service from burgess Hill and Wivelsfield to London Victoria; and
- Journey time improvements for all London services.

Enhanced facilities at the two local stations – Burgess Hill and Wivelsfield – are also recommended, particularly improvements to access, interchange, cycle storage and general refurbishment.

Estimated costs for the two proposed bus networks were developed using the Atkins bus cost model. This model uses standard industry rates along with variables such as route distances and peak vehicle requirements. Revenues were also predicted based on the forecast usage and a fare rate similar to existing town centre services. A comparison of costs and revenues indicates that the proposed routes would be self supporting once the developments are fully complete, provided the forecast patronage levels were achieved.

Phasing and Delivery

In order to assess the total impact of the development of the Burgess Hill sites in transport terms an analysis has been carried out of the total cost per dwelling of transport costs necessary to support the development sites.

The total cost per dwelling of the transport costs necessary to support the proposed development sites would be £13,800 for public transport option 1 and £13,500 for public transport option 2.

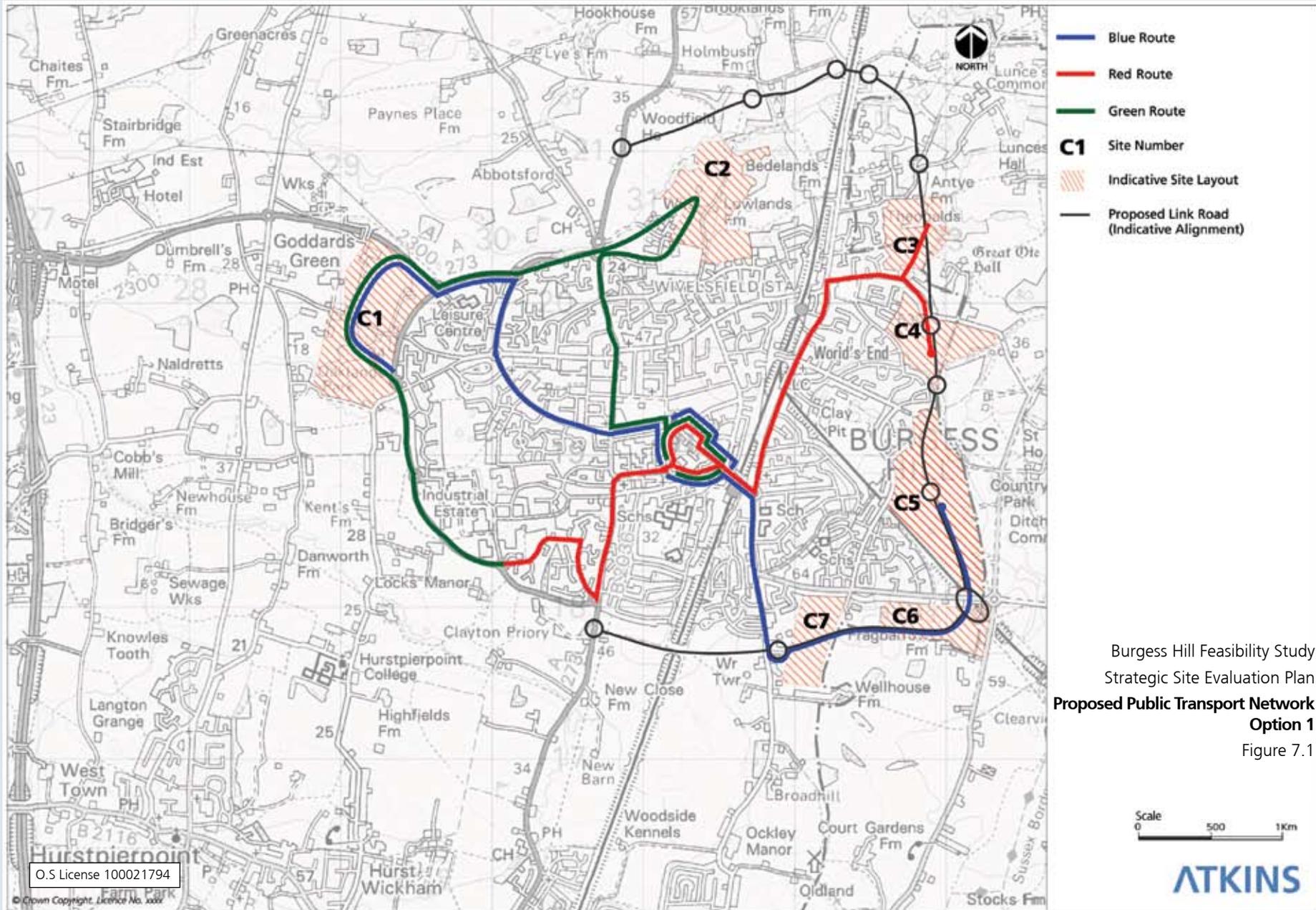
A proposed phasing strategy has been devised. This involves site C1 being completed before the construction of the Link Road. The spine road is then constructed along with the remaining sites, accommodating the cost between sites where possible.

The Way Forward

The results of this transport study suggest the proposed development of approximately 5000 homes in Burgess Hill could be supported by associated improvements in transport networks. This would include investment in additional bus services and the construction of a

Table 7.1 – Traffic Impact Summary

| Road | Impact | Analysis | Existing Conditions | Solutions |
|--------------------------|---------------------------|--|--|---|
| A2300 | Increase in flow | Traffic accessing A23. | Minor delays during Peak Periods. | Minor delays, further modelling required |
| A23 | Increase in traffic flow | New trips with destinations outside Burgess Hill. | Free flowing | Minor delays, encourage internal trips where possible |
| A273 | Increase in traffic flow | Traffic routing between sites and A23. | Free flowing | Minor delays, encourage internal trips where possible |
| B2036 | Increase in flow | Traffic destined for town centre. | Minor – moderate delays during Peak Periods. | Discourage use as rat running route. Provide alternative route via link road. |
| LeylandRoad/ Maple Drive | Increase in traffic flow. | Link between west of Burgess Hill and the town centre. | Moderate delays during Peak Periods. | Discourage use as rat running route. Provide alternative route via link road. |

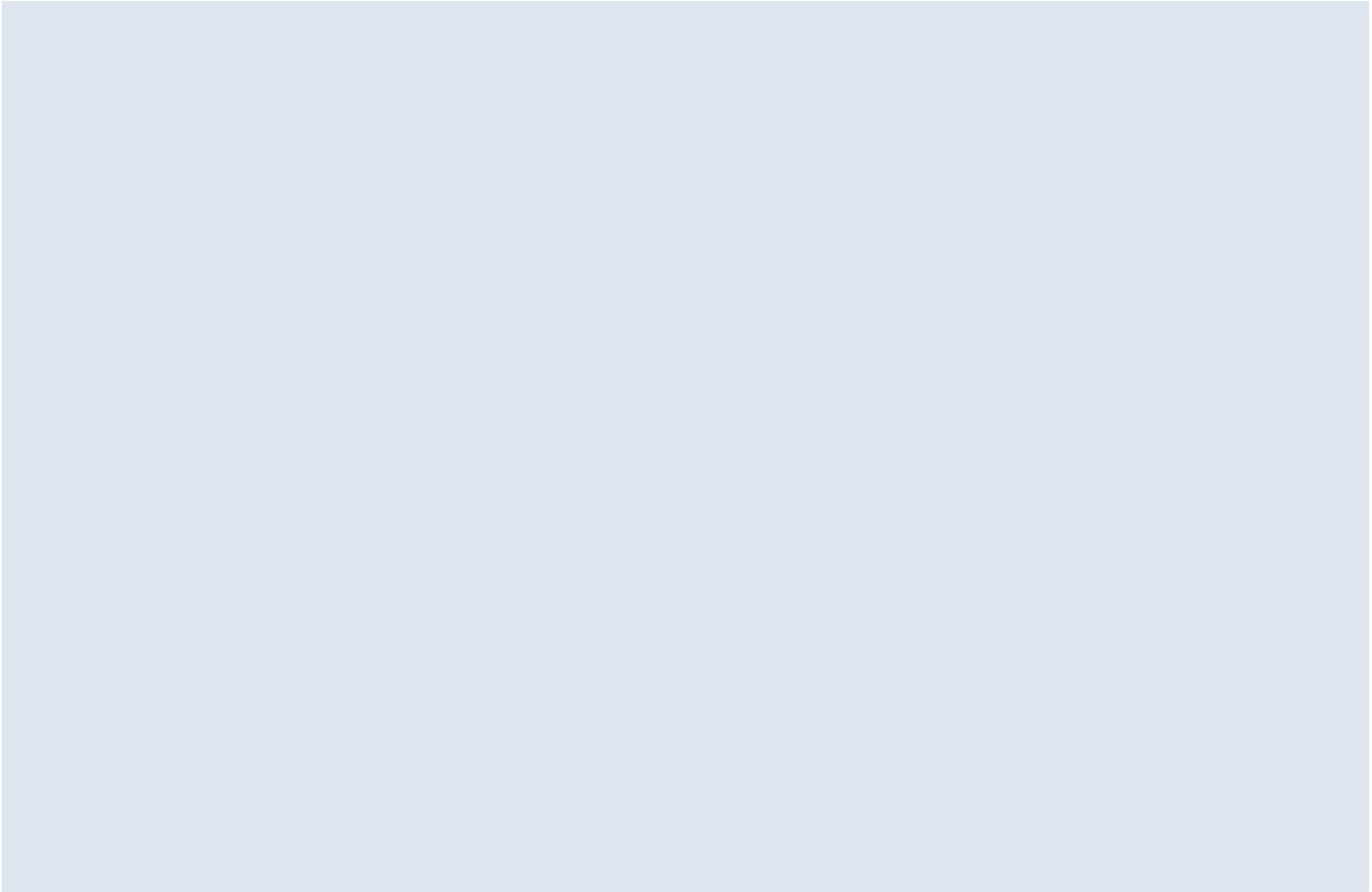


Burgess Hill Feasibility Study
 Strategic Site Evaluation Plan
**Proposed Public Transport Network
 Option 1**
 Figure 7.1

new Spine Road to the east of Burgess Hill to relieve traffic congestion in the town centre. In addition it would be necessary to ensure that all of the proposed development sites are linked to the town centre by appropriate and direct cycle and pedestrian routes, to ensure that the sites are fully integrated with existing development in Burgess Hill.

This transport study suggests that the cost per dwelling associated with the transport proposals would be £13,500-£13,800, depending on the public transport option chosen.

This study is strategic in nature and has used available traffic count, bus patronage and rail data. This has allowed the study to take an overview of the transport impact of the development of 5000 houses in Burgess Hill in terms of existing and proposed infrastructure in the area. However the strategic nature of the study does not allow the transport impact to be assessed at a local scale. It is recommended that if the development options for Burgess Hill are progressed to the next stage, further study at a local scale should be carried out. This would include junction and/or network modelling.



Part V – Summary of Findings and Conclusions

8. Summary of Findings

The aim of this feasibility study is to identify whether there is potential for additional strategic development to provide up to 5,000 dwellings on land around Burgess Hill to accommodate post 2016 housing needs. The study was undertaken in two stages, firstly a site analysis and secondly an assessment of likely significant impacts on the surrounding transport network. An Interim Report was produced at the end of February 2005 to provide an initial analysis of potential options and identify which options should be taken forward for further investigation.

8.1 Site Analysis

The first stage involved a comprehensive site analysis to identify opportunities and constraints to developing areas contiguous with the Burgess Hill urban area and to determine potential capacity of these areas. This involved undertaking landscape and ecological assessments and a desk based assessment of site-specific water and infrastructure related issues.

The most significant constraints to development around Burgess Hill are the impacts on existing floodplain and Ditchling Common SSSI to the east, views from the South Downs to the south, potential coalescence with settlements to the north and south and impact on the strategic motorway network to the west.

Although the majority of the area is in agricultural use, there are areas of woodlands, hedgerows and streams which should be protected. These areas could be incorporated within any potential development to

provide a strong landscape framework and enhance the limited biodiversity.

Potential developable areas were identified from the site analysis. Three options for development of up to 5,000 dwellings were identified as part of the findings of the Interim Report. Two options (A and B) illustrated the potential of providing the entire 5,000 requirement dwellings in one area. Option C demonstrated the potential to distribute the requirement around Burgess Hill. It was concluded that providing a large self contained community would reduce the potential for integration with the existing urban area limiting the opportunities to improve the viability of existing services through financial contributions and increased usage. Coalescence and visual impact issues were also more significant with large new settlements. It was considered that distributing development around the urban area would enable better integration with the existing communities and encourage pedestrian and cycle journeys. A proposed eastern spine road, would be required to serve the sites and help to improve overall accessibility to the east of Burgess Hill.

Option C was considered to be the most sustainable option for new development and was taken forward for further analysis. Site areas were refined and indicative layouts produced to identify the potential capacity of each site. An assessment of the capacity of existing community facilities and the need for new facilities to serve the existing and new communities was undertaken to inform the land use mix of the proposed development sites. Chapter 3 identifies the issues associated with each site and which

should be considered further as part of any detailed masterplanning. There will be inevitable adverse impacts on outlying properties and farms with the development of 5,000 dwellings and associated infrastructure which will need to be compensated. There will also be new impacts on the surrounding landscape and amenities of local residents which will require detailed assessment and mitigation.

8.2 Impact Assessment

Stage two involved assessing the impacts of the maximum site capacity on the surrounding transport network in order to determine whether adverse impacts could be satisfactorily mitigated. The Transport Analysis looked at potential trip generation and the distribution and assignment of vehicular trips to the local highway network. A link capacity assessment was also undertaken to identify the capacity of the network to accommodate more traffic and inform the need for infrastructure improvements.

The results of this analysis suggest the proposed development of up to 5,000 homes in Burgess Hill could be supported by associated improvements in transport networks. This would include investment in additional bus services and the construction of a new Spine Road to the east of Burgess Hill to relieve traffic congestion in the town centre. In addition, it would be necessary to ensure that all of the proposed development sites are linked to the town centre by appropriate and direct cycle and pedestrian routes, to ensure that the sites are fully integrated with existing development in Burgess Hill.

This transport study suggests that the cost per dwelling associated with the transport proposals would be £13,500 - £13,800, depending on the public transport option chosen. The strategic nature of the study does not allow the transport impact to be assessed at a local scale. It is recommended that if the development options for Burgess Hill are progressed to the next stage, further study at a local scale should be carried out. This would include junction and/or network modelling.

8.3 Conclusions

It is considered that Option C is the most sustainable option for the provision of up to 5,000 dwellings around Burgess Hill. This is a feasible option which represents an opportunity to provide the required number of dwellings with the least impact on the surrounding landscape, areas of ecological importance and transport network. The option would allow for successful integration with existing communities, good cycle and pedestrian access to the town centre and provide an eastern spine road to serve the new communities and improve access around Burgess Hill for existing communities. Distributing the housing requirement rather than concentrating it in a large self-contained community will also improve the viability and vitality of the existing town centre.