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Matter 11.2/20801
Matter 11.2/5102

Local Plan Examination

Cambridge and South Cambridgeshire Matter 11.2

Omission site – Cambridge South

**On behalf of Pigeon Land and
Land Improvements Holdings Ltd**

**Prepared by
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1 INTRODUCTION

- 1.1 This statement demonstrates that the plans are unsound without the allocation of a suitable site for the users as proposed on the Cambridge South site (“the site”). It demonstrates how the site is suitable, available, sustainable and deliverable and properly justified by evidence. It is the only solution before the examination which could successfully ‘repair’ the unsoundness of the plans.
- 1.2 If the site is not allocated the plans will fail to:
- meet the objectively assessed requirements of an economic subsector which is essential to the Cambridge and UK economies and to world health solutions and cures. **The importance of meeting the need matters and has world-wide health implications (paras 2.1-2.4);**
 - meet the objectively assessed housing requirements for workers key to the activities of the subsector who currently are unable to access suitable and affordable housing (paras 3.1- 3.8);
 - provide the most sustainable solution to the provision of development requirements (paras 6.1-6.2);
 - provide a development design and form which respects and complies with the need for high quality design, improvements to the setting of the city, use of the green belt and expansion of the city within the compact city context (paras 7.1-7.3).
- 1.3 While the strategic objectives of both plans are entirely sound and consistent with the requirements of the NNPF (Framework) due to the inadequate and/or out-of-date evidence base, the policies and allocations fail to deliver. The statement outlines the relevant vision, objectives and aspirations of the plans, the failure of policies or evidence to deliver and how allocation of the site would ‘repair’ the Local Plan’s failure.
- 1.4 The plan’s failure to adequately consider the site as a reasonable alternative also threatens the legal basis of the plan ¹.
- 1.5 The proposal to develop the site as part of a considered expansion of the city is not new, revolutionary or unexpected. It follows on from a substantial evidence base and a long discussed and implemented strategy for the development of Cambridge within the context of the ‘compact city’. The earlier development of Clay Farm, Glebe Farm, CBC and Trumpington Meadows implements the previously understood plans to meet the needs of city expansion along specific transport/access corridors, including to the south, all within the context of a compact city (para 7.3)²

¹ M1 20801; M1 5102 paras 1.9-1.16

² M6 20801; M6 5102 paras 1.35-1.42 and Cambridge Green Belt Towards 2016 (Cambridge City Council – Appendix 4 of M6 20801; M6 5102



2 ECONOMY

2.1 Strategic objective 10 of the CCLP requires all new development to:

“Promote and support economic growth in environmentally sustainable and accessible locations, facilitating innovation and supporting Cambridge’s role as a world leader in higher education, research and knowledge based industries, while maintaining the quality of life and place that contribute to economic success.”

2.2 Policy S2A of the SCLP includes a key objective:

“To support economic growth and by supporting South Cambridgeshire’s position as a world leader in research and technology based industries, research and education; and supporting the rural economy.”

2.3 These objectives are entirely consistent with the tests of soundness and are particularly relevant and consistent with national policy at paragraphs 7 and 21 of the Framework³.

Relevant policies and evidence

2.4 Policy 40 of the CCLP encourages the development and expansion of business space on several key sites including:

“Research and research and development facilities will be supported in the Cambridge Biomedical Campus (CBC) and Addenbrooke’s ...”

2.5 Policy 16 of CCLP and its explanatory text encourages the delivery of land in the specific subsector related to co-location with CBC and Addenbrooke’s:

“Development proposals will be permitted at CBC (including Addenbrooke’s hospital) where it can be demonstrated that development is required to meet local, regional or national healthcare needs or for biomedical and biotechnology research and development activities within class B1(b), related higher education and sui generis medical research institutes.”

2.6 The policy continues:

“Section 106 agreements and planning conditions will be used to ensure occupation accords with this mix of uses and that sufficient land is available to meet the hospital’s future development needs.”

2.7 Table 5.2 identifies 16.43ha of net land available at CBC and Addenbrooke’s to meet the specific subsector requirements identified in policies 40 and 16. The supporting text at paragraph 5.7 states:

³ *“An economic role – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation ...”(para 7).
“Local planning authorities should: plan positively for the location, promotion and expansion of clusters or networks of knowledge driven, creative or high technology industries.” (para 21)*



“The council can help ensure that suitable land is available in the right place to be attractive to business and that conditions in Cambridge are conducive to doing business ...”

2.8 Paragraph 5.9 states:

*“Many of these sites are **highly specialised** and their occupancy is restricted; **for example, Addenbrooke’s** has a strong clinical, health and biomedical focus ...”*

2.9 These policies and supporting texts suggest an understanding of the importance of the requirements for the subsector of life-sciences and biomedical research which requires a location in close proximity to CBC and Addenbrooke’s. Indeed, the policy and its focus on restricting planning permissions through section 106 agreements has demonstrated how the council has appreciated the need to maintain an adequate supply of sufficient land of the right type, available in the right place to meet the requirements of this specific, **highly specialised** and **nationally important** subsector of life-science and biomedical research.

2.10 The national importance of the subsector has been previously explained and substantial evidence has been submitted throughout the examination to explain the locational requirements of the subsector⁴. The locational requirement report prepared by JLL⁵ further emphasizes the same. Although the councils appear to have been coy during the hearing sessions to admit that this subsector exists such coyness is inconsistent with the explanatory text and caveats imposed in policy and indeed the actions of the same councils in imposing section 106 restrictions on the use of the existing CBC⁶.

2.11 The reason for their coyness is clear. The data and analysis of the objectively assessed requirements for the subsector are clearly out of date. However, acceptance of that fact would inexorably lead to an admission by the councils that far from there being 16.43ha available (table 5.2 of CCLP) for the subsector for the life of the plan period there is already inadequate land available. In fact currently only 1.6ha remains for the highly specialised uses which the original authors of the plan understood and the Framework encourages commitment to meeting the needs of.⁷

2.12 Thus, the plan is based on an out-of-date assessment, does not meet the needs to promote and expand clusters or networks of knowledge driven, creative or high technology industries and fails to deliver over the plan period. The plan in this regard is not, therefore, positively prepared, consistent with government policy or effective⁸. The councils’ attempt to justify a development strategy which favours a dispersal of uses, contending that such a strategy would meet the objectively assessed requirements for a wider life-sciences and biomedical sector. This is flatly contrary to the Local Plan

⁴ M4 20801/5102; MCC4 5102, paras 3.1-3.5 and 4.1-4.10, Appendices 1 and 2.

⁵ Appendix 1 JLL letter 15 Feb 2017, JLL and Creative Places Demand Studies and Med City letter 28 April 2017.

⁶ MSC7 20801 para 2.7 and Appendix 4 of MSC7 20801.

⁷ MSC7 20801 Supplement 1.

⁸ M4 20801/5102 para 2.7-2.12; MCC4 5102; MSC7 20801.



objectives, its explanatory text, policies 40 and 16 and the grants of planning permission/s106 agreements relating to CBC.

3 ASSESSMENT OF REASONABLE ALTERNATIVES (STRATEGY AND SITE)

- 3.1 The councils have failed to consider reasonable alternative strategies, the consequences of not allocating sufficient land to meet the requirements of the subsector, individual alternative sites in a consistent and proportionate manner and have dismissed sites in sufficiently close proximity to CBC/Addenbrooke's as inappropriate simply because they are located in the green belt. The plans do not, therefore, satisfy the legal tests of soundness in terms of properly considering all reasonable alternative strategies and sites⁹.
- 3.2 SCDC's late recognition there is a problem led to a proposed modification to allocate 8.9ha of land directly adjacent to the current CBC. This is on land which had previously been identified as being of high green belt value. The rush to identify a suitable site to meet a need was not considered against other reasonable alternatives based on proportionate evidence. The proposed modification is, therefore, not based on a sound and legally robust assessment¹⁰.
- 3.3 The site is promoted as a mixed use employment led site capable of accommodating approximately 85,000sqm of research and development space, 1,250 homes, primary school, associated infrastructure and 68ha of country park. It is envisaged that the country park element of the development would remain within the green belt¹¹.
- 3.4 The original representations to the submission draft plan identified the proposal as a reasonable alternative to meet an identified requirement for specialised employment uses and to include key worker housing.
- 3.5 Evidence submitted by Pigeon/LIH throughout the examination has demonstrated the need for close co-location of sufficient, suitable and available land to CBC/Addenbrooke's¹². The site, although not directly adjacent to CBC, is in close enough proximity to assist in meeting the needs of the subsector. Reports from JLL and Creative Places and results of their demand surveys¹³ contain further evidence from both local and international agents explaining the need for proximity in the subsector, the proximity criteria which businesses and organisations use for investment decisions in the subsector with the conclusion that the site would function strongly in this regard. The report prepared by Bailey Venning Associates (BVA)¹⁴ explains the unique potential of the site to provide specific key worker

⁹ M1 20801/5102 para 1.6-1.16; M2 2801/5102 paras 1.1-1.19.

¹⁰ MSC7 20801 para 3.18-3.19.

¹¹ Appendix 4 – Cambridge South Masterplan; 'Evolution and Principles' prepared by Aukett Swanke.

¹² M4 20801/5102 para 3.1 and Appendix 1 – 'Business Needs of the R&D sector in Cambridge' prepared by Creative Places.

¹³ Appendix 1 – Report of JLL and Demand Studies.

¹⁴ Appendix 2 – 'Evidence of the Need for Key Worker Housing' prepared by BVA May 2017.



housing. At no point have the councils considered the merits of this unique mix as a reasonable alternative.

4 HOUSING

4.1 Strategic objective 8 of the CCLP states:

“Meet the housing needs of the city within its subregion, delivering an appropriate mix of housing types, sizes and tenures to meet the existing and future needs, including affordable housing.”

4.2 Policy S2C of the SCLP confirms a key objective as:

“To provide land for housing in sustainable locations that meets local needs and aspirations gives choice about type, size, tenure and cost.”

4.3 These objectives and aspirations are entirely in line with the requirements of government policy if properly focussed housing provision could further support the delivery of economic objectives. They are particularly relevant in the market served by the site due to the very particular affordability gap for workers in the science, medical research industries and NHS concentrated at CBC and Addenbrooke’s. The attraction of the right staff in such a ‘people orientated’ sector is a key element to its continued success. The BVA report¹⁵ explains the problem and notes the likely impact on recruitment and retention of staff required to maintain Cambridge’s competitiveness in the field. A critical shortage of appropriate housing at prices which specific key workers can afford is a principal concern of research organisations at CBC¹⁶. The Local Plans do nothing to address the issue.

4.4 The site would deliver in the region of 1,250 homes in a location on the Cambridge fringe, acknowledged by the councils as being a more sustainable location than those selected locations in the submitted development strategy.

4.5 In addition to the provision of market housing the site proposal would uniquely deliver a type, price and tenure of housing to meet local needs and aspirations for workers closely located to a key employment area where employees are currently largely unable to afford to live. The original representations made to the submission Local Plan stated that the proposal included 1,250 market, affordable and key worker dwellings and further explained the opportunity for specific key worker housing¹⁷.

4.6 BVA’s report and JLL’s Demand Studies¹⁸ illustrate the importance to occupiers at CBC and Addenbrooke’s of access to nearby housing of an appropriate tenure and affordability for workers and

¹⁵ Appendix 2 – ‘Evidence of the Need for Key Worker Housing’ prepared by BVA May 2017.

¹⁶ Appendix 1 – JLL letter page 4.

¹⁷ Para 6.20 of representations state, *“of particular significance in this context, the location of the site on the southern fringe of Cambridge and close to Addenbrooke’s hospital ensures it is ideally located in order to meet the needs of Addenbrooke’s and its work force in providing both key worker housing for the benefit of lower paid key workers based at the hospital and larger family housing.”*

¹⁸ Appendices 1 and 2.



researchers as part of the attraction of a site. I can find no part of the councils' evidence which has considered the merits of this proposal in relation to meeting objectively assessed need or supporting economic growth in this way.

- 4.7 BVA's report¹⁹ identifies the needs of key workers in the research and healthcare industries, relates this to the proposal and explains how the proposal to provide such housing would be implemented and controlled. The 'offer' on the site is that 10% (125 homes) would be reserved for key workers on the site, CBC, Addenbrooke's or Papworth Hospitals **in addition to** the 500 policy compliant affordable housing units.
- 4.8 An accommodation of this important need is unique to the site and is not proposed on any other allocated or omission site. If this objectively assessed housing need is not met then the plans fail to be positively prepared, effective and consistent with national policy.

5 GREEN BELT, LANDSCAPE AND BIODIVERSITY

- 5.1 As stated previously in evidence the councils appear to have prepared evidence on green belt and landscape impact to support a pre-determined development strategy which seeks to protect green belt first and give only secondary weight to the focus of government policy to promote sustainable development²⁰.
- 5.2 The methodology used for assessing greenbelt and landscape impact used in the various council sponsored assessments has been roundly criticised by many objectors all with similar concerns. The inspectors' letter of 20 May 2015 noted substantial inconsistencies in the councils' 2012 green belt assessment. Some sites such as the Cambridge South site had been assessed as a single site both in landscape and green belt terms in spite of the obviously varying character and appearance across the site²¹. Other sites such as GB1, 2, 3, 4 and latterly the proposed modification site at CBC had been assessed at a finer grain. Only the Pigeon/LIH team have assessed the site in a legally robust manner as a reasonable alternative with proportionate and consistent evidence²².
- 5.3 An assessment on this more appropriate basis reveals that the site has areas which lend themselves to appropriate development while others particularly the south eastern part of the site do have high green belt and landscape value and should remain undeveloped and within the green belt²³.

¹⁹ Appendix 2.

²⁰ M6 20801/5102 paras 1.19-1.34.

²¹ M6 20801/5102 paras 1.11-1.18.

²² Appendix 3 – 'Preliminary Landscape and Visual Appraisal and Green Belt Review' prepared by SLR.

²³ Appendix 3 – 'Preliminary Landscape and Visual Appraisal and Green Belt Review' prepared by SLR.



- 5.4 The green belt and landscape assessments undertaken by SLR²⁴ illustrate the suggested limits to development based on site focused landscape and visual appraisals. The conclusions of these assessments have guided the preparation of the proposed masterplan prepared by Aukett Swanke²⁵.
- 5.5 The masterplan also confirms the proposal to lay out 68ha of land considered to be of highest landscape and green belt value as a country park thereby enhancing the green belt and landscape value, beneficial use, provision of public access and improvement of biodiversity habitats. The provision of the country park achieves objectives of the plans and of the Framework (para 81) in a way allocations of the plans do not.

6 TRANSPORT/DELIVERY

- 6.1 Strategic objectives of the plans seek to achieve sustainably located development²⁶.
- 6.2 The plan's failure to assess and meet their objectives and those of the Framework for the most sustainable development is a stark illustration of how the plan is inconsistent with clear national policy and is, therefore, unsound without the allocation of the site. Delivery of the site for the restricted and carefully controlled uses proposed, meeting the economic needs of the life sciences and medical research subsector in close co-location with CBC and Addenbrooke's and providing a substantial number of restricted and controlled housing for key workers on the site and in close proximity emphasise the ability of the site, like no other, to enhance the ability to minimise the distance to travel and maximise the use of sustainable modes of transport. These unique qualities of the site are in addition to the generally accepted truth that Cambridge urban fringe sites are, in any case, more sustainable than those located within the selected dispersal strategy. Evidence provided previously explains the relevant strategic transport issues²⁷. The topic paper prepared by Aecom²⁸ explains how the site's development would not cause severe traffic congestion, would help to alleviate existing congestion and could be quickly delivered at no cost to the public purse. The masterplan evolution and principles document prepared by Aukett Swanke²⁹ explains the locational context of the site.

²⁴ Appendix 3 – 'Preliminary Landscape and Visual Appraisal and Green Belt Review' prepared by SLR.

²⁵ Appendix 4 – 'Cambridge South Masterplan; Evolution and Principles' prepare by Aukett Swanke May 2017.

²⁶ Strategic objection 13 of the CCLP states that new developments should: "*Be located to help minimise the distance people need to travel and be designed to make it easy for everyone to move around the city and access jobs and services by sustainable modes of transport.*"

Policy S/2D of the SCLP includes the key objective: "*To maximise potential for journeys to be undertaken by sustainable modes of transport including walking, cycling, bus and train.*"

²⁷ M5 20801/5102.

²⁸ Appendix 5 – Topic Paper – Delivering Cambridge South. Matter 11.2 Transport, prepared by Aecom.

²⁹ Appendix 4 – Cambridge South Masterplan; Evolution and Principles prepared by Aukett Swanke.



7 DESIGN AND CITY EXPANSION OBJECTIVES

- 7.1 The objectives of the plans seek to ensure high quality design and respect the character of the city.
- 7.2 Aukett Swanke's document³⁰ demonstrates the evolution of design at the site and illustrates how the masterplan recognises, respects and enhances the approach to and setting of the city, the river Cam corridor, the scheduled monument and, as described above, SLR's robust assessment of the landscape and green belt features of the site³¹.
- 7.3 Appendix 1 of the masterplan document³² reminds us of previous assessments for careful city expansion including development on the site all within the compact city context³³. The proposal is part of a long discussed strategy for the expansion of the city designed to maintain the city's world renowned reputation and compact accessibility. In addition to explaining the Professor Parry Lewis conclusion of controlled expansion to the south along sustainable transport corridors close to concentrations of employment the document prepared by Cambridge City Council 'Cambridge Green Belt Towards 2016'³⁴ supports the interpretation of a compact city as a ... "well-defined city offering good accessibility, especially in the relationship between home and work place."³⁵. The recent developments at the Cambridge southern fringe including CBC and Clay Farm represent the continuing manifestation of this strategy. The definition of 'compact city is not to place arbitrary restrictions on size and protect all green belt land at all costs. It is now time for the site to play its part in progressing this carefully planned and compact city strategy.

³⁰ Appendix 4 – Cambridge South Masterplan; Evolution and Principles prepared by Aukett Swanke.

³¹ Appendix 3 – Preliminary Landscape and Visual Appraisal and Green Belt Review prepared by SLR.

³² Appendix 4 - Cambridge South Masterplan; Evolution and Principles prepared by Aukett Swanke.

³³ M620801/5102 para 1.35-1.42.

³⁴ M620801/5102 Appendix 4.

³⁵ M620801/5102 Appendix 4 – para 1.6.



Appendices

- 1 – Locational key considerations; JLL letter 15 February 2017; Med City letter 28 April 2017; JLL Cambridge South Demand Study; Creatives Places Demand Stud
- 2 – Evidence of need for key worker housing. Bailey Venning Associates
- 3 – Preliminary Landscape and Visual Appraisal and Green Belt Review
- 4 – Cambridge South Masterplan; Evolution and Principles
- 5 – Topic Paper – Delivery Cambridge South – Matter 11.2 Transport



Appendix 1

Locational key considerations; JLL letter 15 February 2017; Med City letter 28 April 2017; JLL Cambridge South Demand Study; Creatives Places Demand Stud



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15th February 2017

Dear Viktoria,

Cambridge South: International R&D Life Science Companies

Please find a brief overview outlining key considerations for Cambridge South as a future life science cluster within Cambridge.

The context of Cambridge as an international player in the life science industry

Europe is home to a number of countries who play an important role in the growth of the life science market, but the largest markets, competing at the international level, are the UK, Germany and Switzerland. In the UK, the sector is worth £60bn a year, employs more than 220,000 highly skilled people¹, and is largely dominated by the “golden triangle” which comprises London, Oxford and Cambridge, where companies based in this region contribute to 25% of total pharmaceutical turnover.

Cambridge is a global R&D cluster, with over 190 life science related companies² based in the City and surrounding areas. The University, frequently ranked as one of the top five in the world, delivers a strong talent pool with 61.3%³ of its residents possessing a bachelor’s degree, one of the best educated workforces in the UK. Alongside skilled labour, Cambridge’s success has occurred due to the breadth of sciences that are able to come together in one place and collaborate across multiple facets of science. This is achievable through access to world-leading centres of research such as the Sanger Centre, the John Innes Centre for Plant Research and the Babraham Institute of Immunology Research, and also the concentration of world leading healthcare providers including Addenbrooke’s Hospital, Papworth Hospital and the School of Clinical Medicine. Working in collaboration with these major health organisations provides vital research partnerships for the University’s research institutes as well as international companies and SMEs, resulting in innovative discoveries and technological advancement in the City. Proof of Cambridge’s standing as a world leading life science powerhouse, is substantiated by the number of international occupiers who have located there including Amgen, AstraZeneca, Bayer, Gilead, GlaxoSmithKline and Medimmune.

This trend is not exclusive to the life science sector as the market has witnessed a number of international occupiers expanding operations as well as moving their HQs into Cambridge. Microsoft relocated its European Research HQ into CB1 in 2013, in expanding their exposure into healthcare, they chose to be located in proximity to Cambridge Biomedical Campus. Amazon who had existing

¹ <https://www.gov.uk/government/news/life-science-leaders-say-uk-is-better-off-in-a-reformed-eu>

² www.onenucleus.com

³ Office for National Statistics

space at their Cambridge Development Centre are taking further space at One The Square, Brookgate's CB1 development adjacent to the station. And other companies in the technology sector such as Nokia have a strong foothold in the City, with others such as Google and Apple also known to be considering a move to the City.

Brexit and the government commitment to Life Sciences

Brexit presents opportunities and challenges for the UK life science market. Commentators have speculated about the impact from a loss of funding in the sector, the EU provided €8.8bn (\$9.8bn) in grants during 2007-13. However, not all of this funding goes to EU members (such as Israel, Tunisia and Turkey) and outside of the EU it is possible that the UK could still benefit. In addition, as one of the contributors to this funding pot, the UK should be able to re-allocate resources to its own initiatives. Equally, not being part of the EU may allow the UK to be more agile by offering attractive incentives to business, in a similar way to Switzerland and Singapore. A key consideration will be the ability to attract and retain EU nationals who make up 17% of researchers and academics in higher education in the UK⁴.

There is uncertainty surrounding Brexit and this means that the UK and cities like Cambridge need to adopt a proactive approach so that they remain competitive on the international stage. Given that the life science sector contributes so extensively to the economy, the Government has made commitments to promote growth. In November 2016, Theresa May announced an additional £2bn of investment per year for R&D (over the current administration), to ensure British business remains at the cutting edge of scientific and technological discovery. This represented a promise from the Government to promote life sciences and maintain the industry's status as a significant contributor to the sustained growth of the economy. Evidence that the Government recognises Cambridge's vital role in supporting growth in the life science market, was also demonstrated when Greg Hands, International Trade Minister, visited the City to pledge his continued support for the sector in Britain. Substantiating this, the Government committed £137m to Cambridge University, underwriting the EU funding already devoted to research projects.

The key drivers for life science occupiers

The life science sector is not a traditional commercial market. As an international industry, occupiers are often footloose, however R&D occupiers are increasingly unwilling to compromise on location with decisions being driven by specific requirements relevant to their business model. JLL have experienced this first hand as advisors to international life science occupiers including AstraZeneca, Bayer, GSK, MSD and Pfizer. We therefore have a good understanding of the key drivers, which we define as the 'Ingredients for Success', a list of key credentials that are necessary in order to establish a successful and vibrant science hub and attract new occupiers.

1. **Being part of a cluster** – occupiers want to be part of a cluster that will foster innovation and encourage growth. If this is not possible, it is likely that they will aim to be situated close to an existing and established cluster in order to benefit from a ripple effect.
2. **Successful collaboration between academic and commercial research** is important within life science clusters, where research institutes, hospitals and corporate life science companies are able to complement each other's projects. This is particularly key where some companies have a business need to be adjacent to hospital facilities.

⁴ <http://www.economist.com/news/britain/21709600-medical-and-pharmaceutical-firms-ponder-their-position-outside-europe-life-after-brexit>

3. **Access to skilled labour** by being based in an area where there is a strong talent pool of researchers and scientists. Alternatively, some newly developed clusters place themselves close to areas where there is a future talent pipeline.
4. **Cost** is particularly important for SMEs who require costs to be competitive and based on flexible lease terms and favourable incentive packages. However, for larger R&D occupiers, cost is a secondary factor as they are willing to pay the ‘cost of entry’ in to the market.
5. **Infrastructure**, this includes:
 - a. **hard infrastructure** such as transport links via road, rail and air, and internet accessibility and speed of network
 - b. **social infrastructure** such as the availability of affordable housing for staff
6. **A commercial anchor** is recognised as an important component in providing capability and resources for driving entrepreneurial initiatives forward.
7. **Development mix** – delivering the right environment for a range of company sizes and development stages by delivering an appropriate split of space between incubator, grow on and larger institutional type space.
8. **Access to funding** has become increasingly important for life science clusters to kick start development, particularly for SMEs.
9. **Amenity provision** of cafes, communal areas and facilities such as nurseries and gyms have become increasingly important to create an attractive working environment for employees.
10. **Presence of serial entrepreneurs**, people in the market who successfully commercialise IP

Based on previous market testing, the principal influences in choosing a location were revealed to be; successful clustering, access to talent and a strong link to academia/research institutions. Given that these are all features that are synonymous with Cambridge, it provides an indication of how it has become such a successful life science hub and a leading global destination for occupiers.

The impact of global trends

The advancement of technology has allowed real estate to work more efficiently for occupiers resulting in large real estate portfolios of international pharmaceutical occupiers becoming consolidated. This consolidation of space has pushed location further up the agenda with R&D occupiers becoming increasingly focused on existing clusters, with a polarisation of activity on well-known and established locations that satisfy the ‘Ingredients for Success’. Cambridge is well positioned to benefit from this as an international cluster across diverse facets of science.

The ability to recruit and retain staff has also become an increasingly competitive process as employees are footloose, altering jobs and career paths regularly. To retain talent, occupiers have to choose vibrant and well-connected locations, with a strong amenity provision. Cambridge has strong competition from London and other global clusters such as San Diego, Bay Area, Boston and Singapore. In order to compete there needs to be further investment into infrastructure to ensure that the City becomes more interconnected as well better linked on a national and international scale.

Cambridge South – Local drivers of demand

Cambridge South is situated in a prominent location due to its proximity to Cambridge BioMedical Campus that includes Addenbrooke’s Hospital, Papworth Hospital, Medical Research Council and AstraZeneca. Establishing strong links with healthcare providers such as Addenbrooke’s enables life science occupiers to collaborate with clinicians on the delivery of their healthcare solutions and to

access clinical trials. Furthermore, as discussed above, new occupiers will seek to directly benefit from clustering with life science companies such as AstraZeneca. These are attractive benefits to the site, and are ones that would draw larger scale occupiers on a national and international scale, as well as those that are smaller start-up businesses, SME type operators and spin out companies from incubators who want to be part of an R&D cluster.

Evidence of global life science companies moving into Cambridge.

In substantiating the case that Cambridge is a global hub for life science activity, AstraZeneca is an example of an international occupier who selected Cambridge in 2013 to house not just their operating functions, but also their headquarters into the City. Their new £330 million headquarters HQ at the Cambridge Biomedical Campus comprised a site of 11 acres and delivered circa 650,000 sq ft of space, inclusive of a 500,000 sq ft R&D centre to house 2,000 staff.

JLL advised AstraZeneca on this move and presented a wide range of options in different cities to them, from which they could base their research operations and HQ. After a detailed process Cambridge was selected. CEO Pascal Soriot cited publicly at the time that the future of their business was to shift its strategy towards more patient centric work, and at a local level, being situated in proximity Cambridge Biomedical Campus was perceived to be great advantage. This was due to the other pharmaceuticals who had clustered around there, but also as a result of the site's proximity to Addenbrooke's Hospital, where they are able to engage with healthcare professionals to develop and improve the research and development of treatment and access clinical trials. This was a clear differentiator for the site in the selection process and one that was closely aligned to their business strategy.

Challenges of the Cambridge market

Cambridge does however present some challenges for life science occupiers. Firstly, infrastructure in the City requires significant improvement. Traffic congestion is a major issue facing commuters traveling around Cambridge, furthermore train connections from the City across the country are poor and in need of upgrading. With life sciences becoming an increasingly globalised sector, Cambridge would also benefit from Stansted Airport being more extensively serviced by a greater number of international flights. For occupiers, connectivity has become a major locational driver, given that younger generations tend not to own cars, in order to retain talent the ease of commuting via public transport is a major requirement.

A significant challenge for occupiers within Cambridge is the lack of available accommodation. According to Bidwells, office supply has fallen to its lowest level in 15 years with availability rates down to 8.5%. The laboratory market has also experienced a decrease, with available supply falling from 14% in 2012 to 4% by last year. This creates a very constrained market and makes it difficult for occupiers to select space that is appropriate for their requirements. New supply is needed in the Cambridge market, and this supply needs to be viewed as a deliverable proposition to be considered (such as having a favourable planning policy) so that it can compete with other international R&D clusters to attract life science / R&D companies. Bearing in mind the footloose nature of the potential occupiers, this is a key challenge for Cambridge moving forward.

Thirdly, the cost of residential accommodation in Cambridge is another key challenge for occupiers. Prices have risen 75% in a decade, with the asking price in 2006, at £264,227 rising to £463,093 by last year⁵. This makes it challenging for life science occupiers to recruit young professionals who

⁵ <http://www.investforproperty.co.uk/cambridge-figures-at-top-with-75-per-cent-rise-in-property-prices-in-a-decade/>

cannot afford to live in the City and the surrounding areas. The combination of these issues could result in occupiers looking to other competing locations with a better infrastructure provision, more choice of suitable office and laboratory accommodation and cheaper costs of living for their employees.

Conclusion

Cambridge is a life science cluster of international importance showcasing a number of key ingredients that we identify as being crucial to the success of a life science hub. Global trends are influencing how occupiers make location decisions but these potentially accentuate Cambridge's strengths, namely a strong existing cluster, access to academia and research, and talent. However, if Cambridge is to preserve its current standing, and continue to grow as a world leading life science hub, it is essential to provide additional office and laboratory accommodation in appropriate locations within the City. At a local level, Cambridge South provides an opportunity to respond to well recognised drivers in the market and develop a life science cluster of scale with proximity to the Cambridge Biomedical Campus, a local hub for life sciences within Cambridge

Next Steps

We would advise that the business case for Cambridge, and Cambridge South, is tested further with potential occupiers to understand the drivers for demand. From this we will build on the findings of this brief overview to bring together a clear strategy for the development moving forward.

If you have any questions please do not hesitate to contact me.

Kind regards,



Chris Walters
Associate Director - Strategic Development Consultancy
JLL

Mr James Stone
Managing Director, Lands
Improvement
4th Floor, 10 Lower Grosvenor Place
London
SW1W 0EN

28th April, 2017

Dear Mr Stone,

I am writing with regard to your proposed science park development, Cambridge South.

MedCity's mission is to position the greater south east of England as a world-leading, interconnected region for life sciences research, development, manufacturing and commercialisation to stimulate greater economic growth. Our organisation was established as a collaboration between the Mayor of London, the capital's three Academic Health Science Centres - Imperial College Academic Health Science Centre, King's Health Partners, and UCL Partners, and now also incorporates the Academic Health Science Centres in Cambridge and Oxford.

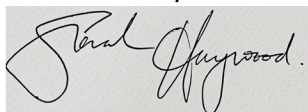
While we do not seek to intervene on the details of individual development projects, our mission is to encourage the growth of science clusters in the south east of England, with the overarching aim of growing the entire region's super-cluster – which is by some measures the largest agglomeration of scientific output in the world.

Cambridge's cluster is a critical part of the life sciences ecosystem within this region. The long tradition of medical research at Cambridge University anchors a cluster which now includes developments such as the Cambridge Biomedical Campus and Addenbrooke's Hospital. I note your plans to complement Cambridge's offer with an additional 85,000 square metres of office and laboratory space for life sciences companies. It is particularly welcome that you are working with Jesus College at Cambridge University on this project. In our experience, having world-class academic institutions underpinning research clusters is a key component to their success.

Your proposed location will give you access to the London-Cambridge train connections, which of course opens the possibility of collaboration with London and its many life sciences institutions, including the most recent addition, The Francis Crick Institute. London's global connectivity and continuing position as both a research hub and as an international centre of finance is an important part of the success of the Cambridge – London - Oxford *Golden Triangle* and strengthens our life science offering across the whole of the region.

We look forward to hearing more about your project as it develops.

Yours sincerely



Sarah Haywood
CEO, MedCity

Cambridge South Demand Study

Introduction

In order to fully understand the main drivers of the Life Science market in Cambridge, JLL and Creative Places undertook soft market testing with a number of R&D stakeholders ranging from multinationals through to smaller, local occupiers. The objective of the interviews was to realise how these market players view Cambridge's future R&D capability and establish what their key locational drivers were. Following on from this, the testing was also used to understand the market's perception of Cambridge South as a R&D hub, compared with other locations within the city, as well as with the rest of the UK.

JLL and Creative Places sought the views of 12 market players including multinational pharmaceutical, medium sized R&D companies as well as small businesses. This allowed for a range of options to be canvassed to establish a local, national and international perspective.

Key Findings

JLL led on the interviews of larger, international R&D companies, speaking to four companies who operate in this market. The key outputs were:

1. **Defining the main drivers for CBC, referencing survey results**

Through the market testing results we have been able to establish the principle locational drivers of Life Science occupiers.

What emerged from our market testing was the importance that international occupiers attribute to clustering alongside academic institutions, clinical research and hospitals. These factors were perceived to be key in promoting innovation and development in their products.

Further to this, access to talent and a company's ability to retain and attract it was also highlighted to be a central reason to locate in a particular location. To quote one multinational pharmaceutical we interviewed, "It is all about the people at the end of the day, it is a struggle to recruit and retain from day one. If you have a strong research institute and community, the people are already there which helps. They go hand in glove."

The lack of housing that is affordable, was one factor that was highlighted as being restrictive for occupiers in attracting and retaining talent in Cambridge. The rapid rise in capital and rental values of residential accommodation in Cambridge have made it a challenge for Life Science companies to employ young professionals as they cannot afford to live within the city.

Access to transport was also highlighted as a key consideration of a particular location. Connectivity is very important particularly for international pharmaceuticals, firstly in order to link to their own global network, but also in accessing clinical research, funding partners and academic institutions easily.

As a result of these key driving factors, interviewees were clear that they had a preference to be located in close proximity to Addenbrooke's Hospital and Cambridge Biomedical Campus.

2. Demonstrate in your opinion that Cambridge South that is close enough to operate successfully in this way.

When questioned on the suitability of Cambridge South as a location to successfully operate from, occupiers highlighted that it would be a strong consideration for them. Proximity to the key institutions discussed above were viewed as essential to enable collaboration, knowledge transfer and innovation. “Proximity” was defined as being within 10-15 minutes by walking, cycling or public transport, by all of the global pharmaceutical companies who responded to the market testing. One respondent emphasised this point, highlighting that through research they had carried out on this particular subject, they had found that “when we moved from a location from 30 minutes to 10 minutes, the collaboration increased significantly because it was a drop in type arrangement.”

It was highlighted by the majority of pharmaceutical occupiers questioned, that the current supply suitably located Life Science accommodation was “critically low” to “low” in Cambridge and was therefore concluded that in order to maintain Cambridge’s reputation and standing as a global player in the Life Science market, there was a clear need to develop a successful cluster in proximity to the city’s academic institutions, clinical research institutions and Addenbrooke’s Hospital.

Cambridge South Demand Study

Introduction

Creative Places are specialist property consultants working in the research/commercial R&D sectors. We have been working on a number of projects within the Cambridge sub-region, sitting alongside commercial property agents, since we were formed in 2009. We have direct experience of bringing businesses into these places and have unique understanding of the drivers that affect where businesses ultimately choose to locate.

We have conducted interviews with a number of businesses in the Cambridge sub-region that have recently acquired property or who may have property requirements in the short to medium term – and who are looking to undertake R&D activity with healthcare related application. They are a cohort that have direct experience of looking for property or considering the issues of where best to locate their activity. We present our key findings made by these businesses during our interviews below.

In summary, our view suggests that delivering further capacity at or close to the Cambridge Biomedical Campus, within Cambridge rather than beyond it, will be important.

Key Findings

1. Defining the main drivers for our cohort, referencing survey results

R&D intensive companies value the proximity to current and potential future collaborators from both an academic and clinical research perspective. These collaborations allow commercial product development time and costs to be shortened when working with key opinion leaders in their respective therapeutic or technology area.

Companies placed attracting and retaining talent from both domestic and international locations as a major factor in location decisions. Cambridge has a significant advantage owing to the brand of the science and skills capability that exists in the cluster and across the region.

Companies have clearly defined cultures and place great emphasis on their staff's ability to travel to work in a flexible way. The majority of companies we interviewed stated being within a 20 minute cyclable distance from the city centre was important. Two companies in particular went further to define their location decisions were made solely on a cyclable distance and also a site which had adequate public transport that they would not have to use a private car to commute to work. Therefore, making it easy and flexible for staff is one of the key factors in location decisions when moving around Cambridge.

Another core logistics and transportation theme emerging from the interviews is connectivity and access to the railway network in order to commute to London.

2. Demonstrate in your opinion that Cambridge South is close enough to operate successfully in this way

Looking at location maps of key sites across Cambridge, the majority of companies indicated that being located south of the city would be preferable. The majority of local companies expressed their preferences for a short cyclable distance when conducting their research and collaboration activities on the Cambridge Biomedical Campus and between Cambridge South as a location.

One company stated *"We would prefer to be around Addenbrooke's Hospital but if Cambridge South has a railway station that makes it attractive for connecting to London"*.

Another company quoted *"We prefer the southern side of the city owing to a combination of infrastructure, potential collaborators and it is still close to the city centre and the railway station."*

Some SMEs on the next stage of their growth, found it difficult to find the right supply of property in Cambridge. Most companies ranked the perception of availability of commercial space in Cambridge as critically low. Some went on to state *"We only wanted to be on the south side of the city and found it incredibly hard to find the right space"*.

A company scaling up to over 100 people went further to define Cambridge as having a tricky commercial property situation. *"If Cambridge is the world's knowledge-based economy and we are to exploit the success of our science and technology base, then there needs to be more consideration to provision of buildings for scale ups. Think of the movie, Field of Dreams 'if you build it, they will come' is what's needed, Cambridge will fill it!"*



Appendix 2

Evidence of need for key worker housing. Bailey Venning Associates

Evidence of the Need for Key Worker Housing

Cambridge South Science Park

by
Bailey Venning Associates Limited on behalf of
Lands Improvement and Pigeon Land

May 2017

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1.0 Executive Summary

- 1.1 Bailey Venning Associates is instructed by Lands Improvement and Pigeon Land to examine the evidence of need for intermediate housing in South Cambridgeshire, with a particular focus on the needs of key workers in the research and healthcare industries.
- 1.2 The requirement to consider this evidence arises from the outline proposals made by our clients for the development of 1,250 homes and 85,000m² of employment and research space at Cambridge South Science Park. The proposals seek to be policy compliant for affordable housing provision, in addition to which it is intended to provide an additional 10% of housing for key workers in the science and medical research industries.
- 1.3 The National Infrastructure Commission has been asked by Government to consider the issues affecting the Cambridge-Milton Keynes-Oxford Growth Corridor. The NIC reports on the implications of the corridor's success in an internationally competitive market, reporting, "The Commission's central finding is that a lack of sufficient and suitable housing presents a fundamental risk to the success of the area."
- 1.4 Our conclusion in considering the needs of employees in the healthcare and medical research sectors, is that the principle salary band for which the housing needs of key workers needs to be given special consideration is in the range £25,000 to £40,000 with a mid point of £32,500 per annum.
- 1.5 We have then considered the provision of housing in the context of a model for a functional housing market and the roles that different tenures play in satisfying housing need. Consideration of the model leads us to conclude that there is a gap in provision.
- 1.6 Our analysis suggests that a household income of £45,000 is necessary to be able to afford market rented housing in the local area of Great Shelford and Cambridge South, and just under double that is required to purchase a lower quartile property. The data for the Cambridge Broad Rental Market Area from Valuation Office Agency suggests that there are cheaper rents available, but these are significantly further away from Cambridge and its employment centres leading to potentially unsustainable and unattractive commuting patterns.
- 1.7 The analysis indicates that key workers in the research industry and healthcare sector are facing significant challenges in affordability of housing in the context of a housing market that is only marginally affordable to households on mean wages.
- 1.8 Furthermore, workers in those industries are unlikely to be able to claim housing benefit to support their housing needs in the private sector because their earnings are too high, and are also unlikely to be allocated affordable housing as a consequence of allocation

policies favouring those in greater need. The impact of the withdrawal of housing benefit for households needing affordable housing and earning above approximately £20,500 can also be seen and coincides also with the upper limit of affordability of rented affordable housing (affordable rent and social rent).

- 1.9 For households earning between £20,500 and £45,000 per annum there is a gap in provision.
- 1.10 Being able to recruit and retain staff goes to the heart of the competitiveness of the internationally renowned Cambridge sub-region and the research and healthcare sectors associated with the knowledge centre. An attractive housing proposition in terms of accessibility, quality and affordability is a key component of that.
- 1.11 The spatial strategy employed by the planning authority, in responding to the evident constraints, is one of dispersal with development primarily focussed outside of the greenbelt.
- 1.12 The site promoted by Lands Improvement and Pigeon Land represents one of the very few options available close to Addenbrooks and other key employment areas for the research industry where specific provision can be made and is proposed to be made for workers necessary to sustain the vitality of the sector. The mechanisms to promote such housing should be simple to operate within a Section 106 Planning Obligation which would include a qualifying employment criterion to test eligibility for access to the key worker housing provided. This would run alongside of more traditional obligations surrounding the agreed level of affordable housing provision determined through the planning process.

2.0 Introduction

- 2.1 Bailey Venning Associates is instructed by Lands Improvement and Pigeon Land to examine the evidence of need for intermediate housing in South Cambridgeshire, with a particular focus on the needs of key workers in the research and healthcare industries.
- 2.2 The requirement to consider this evidence arises from the outline proposals made by our clients for the development of 1,250 homes and 85,000m² of employment and research space at Cambridge South Science Park. The proposals seek to be policy compliant for affordable housing provision, in addition to which it is intended to provide an additional 10% of housing for key workers in the science and medical research industries.
- 2.3 The National Planning Policy Framework defines intermediate housing as part of Affordable Housing defined in Annex 2 of the NPPF:
- “Intermediate housing is homes for sale and rent provided at a cost above social rent, but below market levels subject to the criteria in the Affordable Housing definition above. These can include shared equity (shared ownership and equity loans), other low cost homes for sale and intermediate rent, but not affordable rented housing.”
- 2.4 Cambridge and its surrounding area has enjoyed the success stemming from growth in a number of employment sectors, including in the science and research industry. This has led to significant housing pressure where house prices have fallen out of step with incomes. Households, in their search for more affordable housing options, are being pushed to unsustainable patterns of commuting.
- 2.5 The National Infrastructure Commission has been asked by Government to report on the issues affecting the Cambridge-Milton Keynes-Oxford Growth Corridor. The NIC characterises the area as being “home to 3.3 million people and hosts some of the most productive, successful and fast growing cities in the United Kingdom, as well as world leading universities, knowledge intensive high-tech firms and highly skilled workers. The area is a hugely valuable asset to the UK as a whole. Its universities, businesses and technology clusters have a global reputation and compete on the world stage.”
- 2.6 The NIC reports on the implications of the corridor’s success in an internationally competitive market, reporting, “The Commission’s central finding is that a lack of sufficient and suitable housing presents a fundamental risk to the success of the area.”
- 2.7 The 2013 Strategic Housing Market Assessment for the Cambridge Housing Sub-Region reports that “the total population is expected to reach 970,000 by 2031, an increase of 176,000 or 22% from the actual population established by the 2011 Census.” The

increase in population then “results in an objectively assessed need for 93,000 additional homes, including 44,863 affordable homes, across the housing market area between 2011 and 2031; and for 81,000 additional jobs in the same period.” Such a requirement for new affordable homes, already taking into account resales and relets, equates to an average of 47.9% across the housing sub-region.

- 2.8 Not all areas are equal with a distribution of affordable housing need which focusses on the issues in Cambridge itself. In South Cambridgeshire there are a reported 19,000 additional homes required of which 9,011 should be affordable. Cambridge City is reported as needing 14,000 new homes, however the 2013 SHMA also concludes that the city needs 14,418 new affordable homes over the same period. The SHMA findings imply that over 100% of the need for new housing in the city should be affordable housing, or that need is exported from the city to outlying, cheaper areas leading to greater levels of commuting.
- 2.9 All calculations and considerations of affordable housing stem from the National Planning Policy Framework and the definition of “Affordable Housing” in Annex 2. This states that it is housing “provided to eligible households whose needs are not met by the market. Eligibility is determined with regard to local incomes and local house prices.” It is the interaction between these two components that gives rise to affordable housing need.

3.0 Model of functional housing market

3.1 A key element to housing markets being able to function correctly is to enable choices to be made when seeking housing, regardless of income and financial circumstances. The housing offer of a community is one element to ensure that a diversity of households have their housing needs met. This principle is supported by Paragraph 47 and 50 of the NPPF. These choices are best represented through a continuum, depicted below:



3.2 In the housing continuum housing need ranges from households to the right who have no need for intervention to satisfy their need for housing, to the households on the left who require the maximum level of intervention.

3.3 Traditionally the needs of those households unable to access the housing market have been met through rented affordable housing, either in social rent or affordable rent. The affordability of rented affordable housing is determined through a formulaic approach set by government. An increasing gap has emerged between rented affordable housing and the incomes required to afford to enter the open housing market.

3.4 Social rent is determined by a rent formula primarily linked to local incomes and 1999 house prices whilst affordable rent is based on up to 80% of market rent but subject to a Local Housing Allowance cap. The LHA cap, when it was first introduced, was set at the median of the distribution of rents before reform in April 2011 when it was adjusted to the 30th centile of the distribution of local rents. The LHA was then frozen in 2012 to make way for annual Consumer Price Inflation adjustments and an additional 1% year on year rent reduction for four years was imposed by the Chancellor in July 2015.

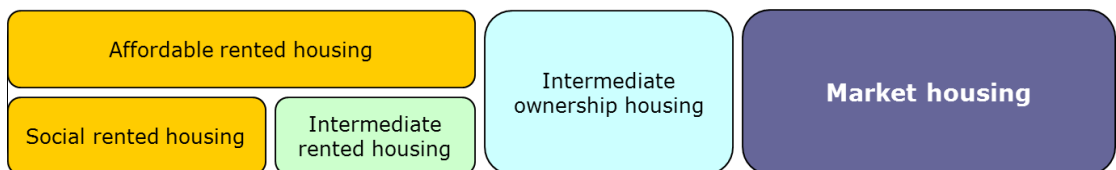
3.5 The restriction on rental and the management of the housing benefit and overall benefits bill by the government in seeking to reduce costs to the tax payer have the effect of compounding the increasing affordability gap as the housing market moves further away from social sector rents.

3.6 Rented affordable housing is therefore described as being non-market housing with the gap being filled by near-market, or intermediate, housing, represented thus:



3.7 In the face of need for affordable housing, solely increasing rented forms of affordable housing provision is not considered to be the answer in satisfying the needs of all of those excluded from the housing market. Such a policy is expected to result in increased polarisation between those renting and those who are already home owners, trapping those who are unable to afford to purchase. Provision of only rented accommodation through planning policy would merely increase this level of disparity, without offering further choice to those households who may already be in affordable housing, yet be able to afford other housing products were the choice to be available. Census 2011 in South Cabridgeshire records that there were 1,258 households in Shared ownership (part owned and part rented) and 8,546 households in the Social rented sector, almost seven times as great.

3.8 Indeed, in offering choice to those households locked into their tenure through the inequality between housing costs and incomes, particularly purchase prices, it is anticipated that units could be freed up for households in greater need. It is only through considering the needs of the whole housing market in this way that the necessary stocks and flows can be generated to allow the market to function efficiently and most significantly offering people choice in their housing solutions. If existing households in rented accommodation can be facilitated to realise their aspirations and move into near market or non-rented/intermediate rented affordable housing the Council benefits from the opportunity to re-let a rented affordable unit and a new intermediate unit. This approach would both meet an identified need and increase the net affordable housing benefit for South Cambridgeshire and the city.



3.9 The NPPF requires that the relationship between local incomes and local house prices is examined to determine the level of affordable housing needed.¹ The NPPF itself does not determine how this should be carried out and the formal Guidance to the NPPF (NPPG) does not stipulate the exact parameters for affordability testing. For the purposes of

¹ Annex 2: Definitions “Affordable Housing”, NPPF, CLG March 2012, page 50

consistency, the principle of one third of gross income to test the affordability of rented housing as used in the SHMA is used here.

4.0 Employment and wages

4.1 Employers in the healthcare industry, including the Cambridge University Hospitals NHS Trust (CUH) (which includes Addenbrookes and Rosie Hospitals), and the research industry such as Astra Zeneca face substantial challenges recruiting and retaining staff in the face of high housing costs. It is not simply a matter of paying staff more in an internationally competitive marketplace where different geographic regions compete for both the research funding and associated work and the staff to carry out the research.

Medical context

- 4.2 The CUH website confirms that “Cambridge is home to one of the richest pools of clinical and scientific knowledge and expertise not only in the country but in the world. At CUH this is reflected in clinical teams working in the hospital alongside world-class scientists from a wealth of internationally renowned organisations such as the Medical Research Council (MRC) which shares the hospital campus.”
- 4.3 The NHS and related employment uses banding and pay spines to determine rates of pay for various roles across organisations. Banding is determined by the level of role with each band being allocated based on responsibility, complexity and seniority. Within each band there is a pay spine which is a scale showing the rates of pay for employees, with the increases in pay an employee gets when they spend a certain length of time at a particular level or through meeting performance targets.
- 4.4 Foundation Year Doctors, based on the British Medical Association pay scales, earn between £23,000 rising to £32,000 following at least two years’ experience and at the top of the spine point. Registrars commence at £30,000 and rise to £40,000 though with full training in a specialty and at least 6 spine points and above this could rise to a maximum of £48,000.
- 4.5 Other healthcare workers such as nurses, administrative and clerical staff and healthcare assistants work from the Agenda for Change pay bands. The majority of nursing staff are employed within Bands 5 and 6, those with management and senior responsibility rise through Band 7. Administrative and support staff range from Bands 2 rising to Band 6 for senior staff, Bands 7 and above are typically reserved for head of service and director level appointments.

Band	Pay Scale range from	to
2	£ 15,404	£ 18,157
4	£ 19,409	£ 22,683
5	£ 22,128	£ 28,746
6	£ 26,565	£ 35,577
7	£ 31,696	£ 41,787
8	£ 40,428	£ 75,573

Research Industry context

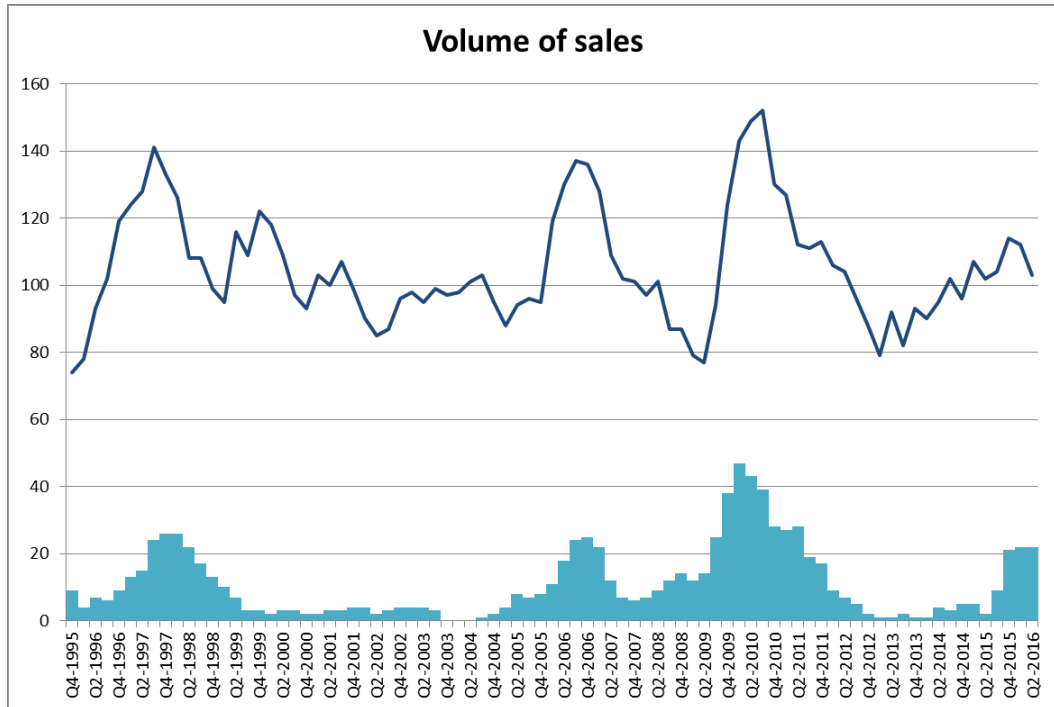
- 4.6 Remuneration for research scientists reported on Payscale.com and Glassdoor.co.uk suggest typical gross salaries in the range of £25,000 to £48,000 with an overall average in the region of £33,000.
- 4.7 A snapshot of jobs listed on Glassdoor.co.uk accessed on 2 May 2017 with the description Research Scientist was reviewed. Data on 114 scientist positions in Cambridge were noted, of which the average annual salary was £34,366, a little higher than the national average for such jobs. Reviewing the data it is apparent that this level of salary is typical for people with more than 5 years' experience. Starting salaries appear to be in the region of £28,000 per annum.
- 4.8 In conclusion when considering the needs of employees in these sectors, the principle salary band for which the housing needs of key workers needs to be given special consideration is in the range £25,000 to £40,000 with a mid point of £32,500 per annum.

5.0 Cambridge South Housing Market

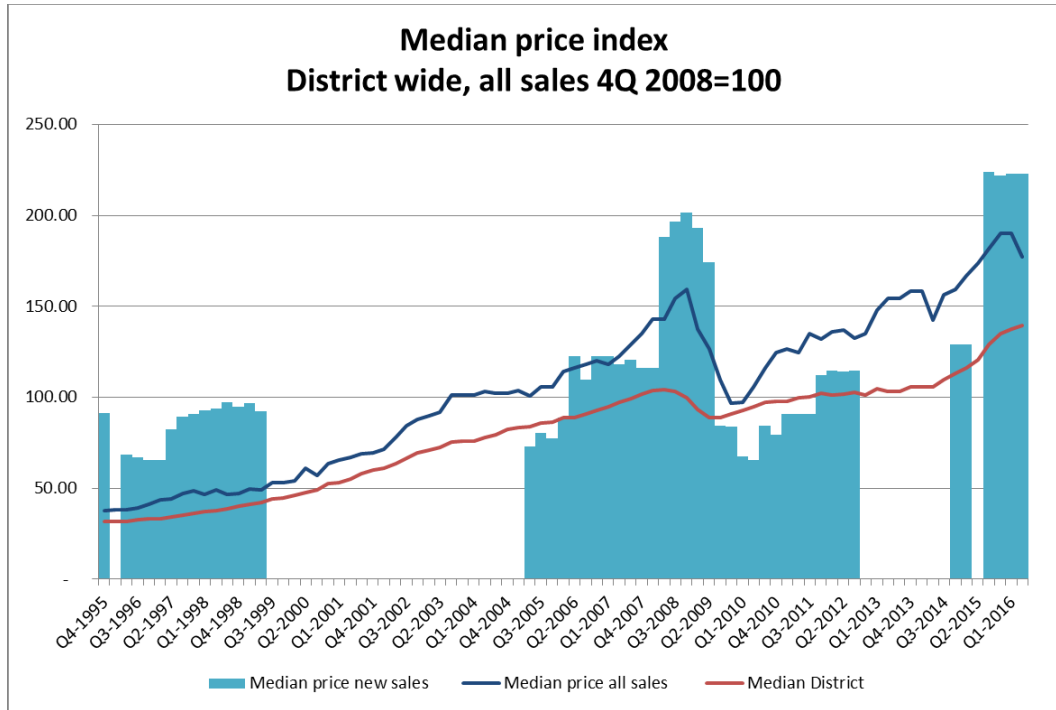
- 5.1 The South Cambridgeshire housing market (Map 1) is dominated by its proximity to Cambridge with employment in a number of key sectors, not least of which is the NHS and the research institutes. As might be expected, areas of central Cambridge have very high levels of rented housing associated with the University. South Cambridge also has certain areas with high to moderate levels of private rented housing, and typically lower levels of social rented housing in comparison to Cambridge.
- 5.2 Household incomes are also higher than many areas of England, and vary across the district. The highest incomes are concentrated in a swath running to the west of Cambridge and to the south of the A14. (Map 2)
- 5.3 Household incomes have then been compared to median house prices in Map 3, based on the ONS Small Area Geography datasets which give income and average house prices at Middle layer Super Output Area (a geographic area comprising approximately 3,000 households). This ratio can identify the incidences of highest pressure from the mismatch between house prices and household incomes, the principal behind the definition of affordable housing contained in the NPPF.
- 5.4 As can be seen, the highest stress (or highest ratio) is in the south west of Cambridge, which extends into South Cambridgeshire on a south west axis. These areas, particularly those bounding the southern Cambridge border, have relatively high household incomes but also have high average house prices.
- 5.5 Data on the mortgage market is limited and, for the purposes of this study, we have used national mortgage data from the Council of Mortgage Lenders. CML disaggregate lending data to two groups of households: home movers and first time buyers. We consider the use of home movers data as a proxy for established, settled households purchasing average property and first time buyers as a proxy for newly establishing households purchasing at typically lower quartile prices.
- 5.6 Using the ONS house price data, we have then constructed an affordability index for home movers and first time buyers. The index calculates the income required to afford a mortgage based on the median house price for the MSOA using data from the Council for Mortgage Lenders on typical lending ratios and loan to value ratios for first time buyers and home movers. The required income is then divided by the income recorded by ONS for the MSOA to give a comparative measure of affordability between areas.
- 5.7 A ratio of below 1 suggests that the income required is less than the average income for the area and the conclusion can be drawn that there is likely to be low levels of

affordability stress. A ratio of above 1 suggests that the income required is higher than the average level of income recorded in the area and thus there is an affordability issue in the market at that locality.

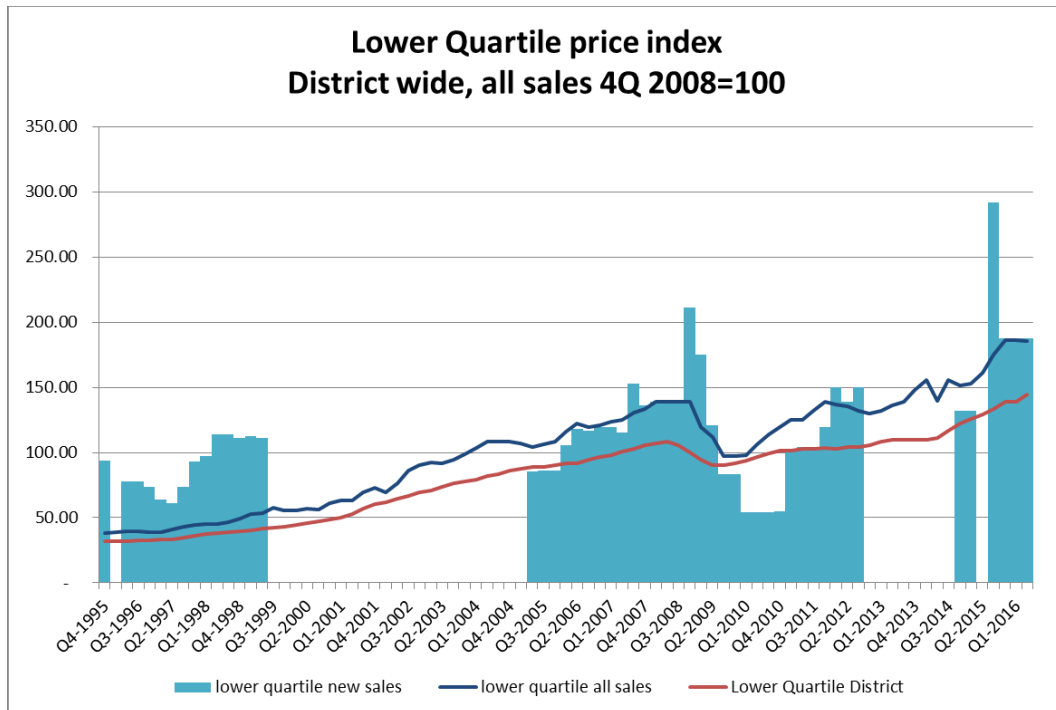
- 5.8 Map 4 shows that the pattern for home movers broadly mirrors the price:income ratio map above. Yellow areas show the more affordable areas for home movers, away from Cambridge. This could indicate greater reliance on travel in to work for established households.
- 5.9 The analysis for first time buyers, shown in Map 5, uses lower quartile house prices compared to average incomes and a higher loan to value ratio of 84.3% reflecting current lending practices to first time buyers. The areas of highest stress, outside of Cambridge, are in those areas closest to the city, the highest stress being experienced to the south and west. The implication is that the areas in the city with the highest levels of affordability stress will displace housing demand towards the areas with lower stress where housing is typically more affordable.
- 5.10 We see the First Time Buyer mapping as being more typical of the issues and affordability being faced by key workers in the Cambridgeshire housing market than the analysis for Home Movers above.
- 5.11 We have examined the housing market data for the MSOA area identified as South Cambridgeshire 012 which is located due south of the city and abuts its southern boundary. The MSOA boundary is shown in turquoise on the Map 1.
- 5.12 Housing market data for the MSOA has been analysed over a time series for median and lower quartile house prices and sales volumes and indexed to district wide data, using peak of market in 4Q2008 as 100.
- 5.13 In terms of sales volumes, the graph below shows the total of all sales within the MSOA over time as the solid blue line. Sales of new property only are shown as a bars on the chart below and represents an intermittent supply of property. Given that the total of all sales includes new sales, it can be interpolated that the balance of property sales is within the existing second hand market. It can be seen that this is broadly consistent over time at approximately 80 properties per month.



5.14 If median house prices are examined, based on an index using the district wide house price for 4q2008 as the baseline of 100, we can see that generally median house prices are higher within the MSOA than the district wide median. Also the price of new property, in comparison to the baseline, is more expensive than the baseline as the market is peaking, both in 2008 and more recently. It is interesting to note that these peaks also correspond with low sales volumes, indicating that supply of housing can be a substantial factor in mitigating higher house prices.



5.15 Turning now to Lower Quartile house prices in the MSOA, much of the trend reflects the median house price observations above, though there is a less prolonged effect of peaking prices during peak periods.



6.0 Affordability Gap

- 6.1 As noted above, there are no fixed rules for testing affordability of housing as defined in the NPPF. In absence of detailed guidance therefore it remains reasonable to make reference to the local SHMA, completed in 2013 for the Cambridgeshire sub-region.
- 6.2 In order to gain further understanding of the potential role for affordable housing and intermediate housing for keyworkers in particular, affordability modelling using indicative rent levels, sales values and incomes has been carried out.

Income measures of affordability

- 6.3 In line with the SHMA, a maximum of a third of gross income was used to determine affordability of rented housing.
- 6.4 For mortgages, lower quartile house purchase and shared ownership was assessed using national average data for First Time Buyers from the Council of Mortgage Lenders whose most recent reporting suggested that a Loan to Value ratio of 84.3% and an income multiple of 3.53 was relevant in assessing mortgages for this group.
- 6.5 The data for Home Movers, assessed using median house price data, used a Loan to Value ratio of 72.2% and an income multiple of 3.34 from the same data source, reflecting that home movers have typically built up a level of equity from their previous purchases and are often moving to more expensive property.
- 6.6 Households in housing need have the ability to claim for housing benefit where they are housed in private rented sector housing, but this is also subject to a cap at Local Housing Allowance rates. Housing Benefit is also subject to a means test which has the implication that there is a maximum household income level where housing benefit tapers to zero.
- 6.7 Affordable housing need is primarily satisfied through the main tenures of social rent and affordable rent. Affordable Rent, though charged at 80% of market rents, is also effectively capped at Local Housing Allowance rates as noted above. There are other tenures also used to satisfy need: intermediate rent provided at up to 80% of market rent; and shared ownership and shared equity which are based on a percentage market share purchased with or without rents paid on the proportion of equity not owned. The assumptions used for shared ownership are for a proportion of market value rising from 25% with rent charged on unsold equity at 2.5% and for the income bracket for its affordability rising to the HCA cap of £80,000 household income.

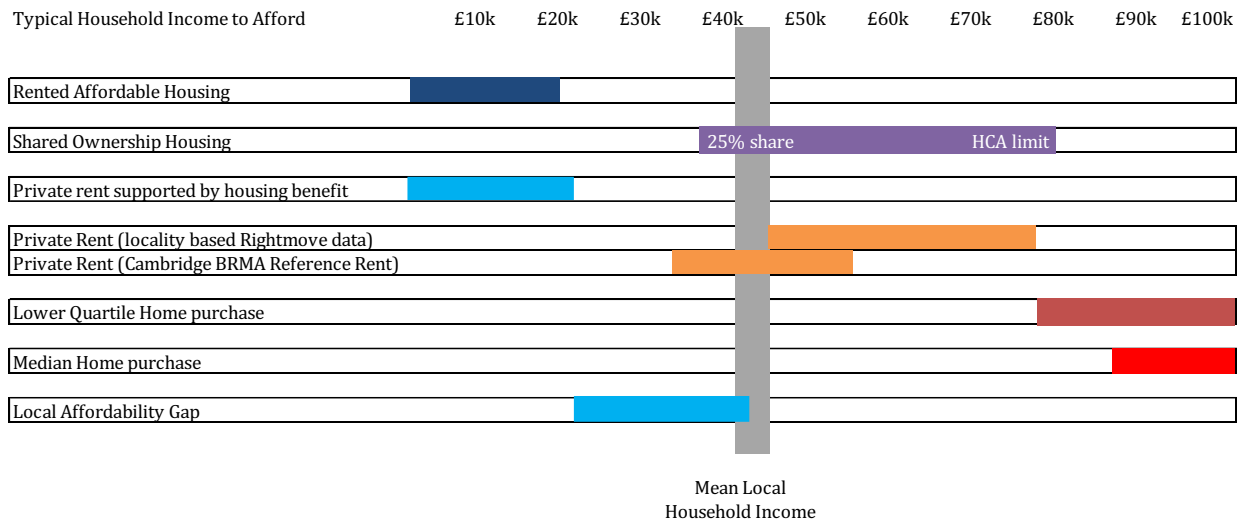
The price of local housing

- 6.8 Market rented data is sourced from two different sets of data. Firstly, the Valuation Office Agency publishes Local Reference Rent tables which represents the rent at which the rent officer expects private rented housing to be typically available across a Broad Rental Market Area, in this case Cambridge. The BRMA in this case covers a wide area, extending almost to Huntingdon in its western extent, to the east past Newmarket, to the north past Ely and to the south including Saffron Waldon.
- 6.9 We have therefore also taken a local analysis of rents available on Rightmove across the Great Shelford area extending to the Cambridge City boundary. The rents in this sample are significantly higher than for the BRMA and are very close to those reported by VOA for Cambridge itself and reflect the influence the City has on the local market.
- 6.10 Using the same search area in Rightmove, data for two bedroom properties has been analysed to determine a lower quartile and median house price. These were £323,000 and £392,000 respectively. These are then compared with the sales data from the ONS Small Area Geography dataset provided the data for consideration of the purchase of houses on the open market which recorded that lower quartile prices were £334,000 and median house prices were £420,000 for the MSOA Cambridge 012 for all sales. The market purchase price for lower quartile properties is then also used for calculating the affordability of shared ownership.

Affordability and gaps in the provision of housing

- 6.11 In the affordability model below it can be seen that there is an affordability gap for two bedroom homes that begins at the point housing benefit is removed and rises to approximately mean household income levels. We have selected two bedroom homes for the analysis as, for single people under the age of 35, housing benefit would only be eligible on the basis of a shared accommodation rate (there is an expectation that single people will not need to live alone up to the age of 35). Similarly, for couples aspiring to home ownership there is a tendency to buy space to allow for family without having to move home within the first few years.

Affordability of 2 bedroom homes



- 6.12 It is noted that the SHMA reported typical household incomes for shared ownership purchasers was £29,800 in 2013 and most demand was seen for two bedroom homes, although there was also limited evidence of demand for three bedroom homes. It is clear that the housing market has moved on significantly since the SHMA data was collected. Indeed the analysis above indicates that house prices may have risen as much as 25% and above since then.
- 6.13 Our analysis above suggests that a household income of £45,000 is necessary to be able to afford market rented housing in the local area of Great Shelford, and just under double that is required to purchase a lower quartile property. The wider BRMA data from VOA suggests that there are cheaper rents available, but these are significantly further away from Cambridge and its employment centres leading to potentially unsustainable and unattractive commuting patterns.
- 6.14 The impact of the withdrawal of housing benefit for households needing affordable housing and earning above approximately £20,500 can also be seen and coincides also with the upper limit of affordability of rented affordable housing (affordable rent and social rent). Between this and the access price for local, rented housing there is a gap in provision.
- 6.15 Shared ownership with the lowest possible share purchased of 25% becomes affordable to households earning just under £40,000 per annum, but it should be noted that supply of this tenure is limited.

- 6.16 Across South Cambridgeshire as a snapshot for the financial year 2015/16, it is recorded that there were 55 affordable homes completed, of which 34 were for affordable home ownership including shared ownership.² This should be compared to the housing waiting list for the same period which recorded that there were 431 households in a reasonable preference category on a housing waiting list totalling 1,563 households.³

² Live Table 1011, Communities and Local Government.

³ Local authority housing statistics data returns for 2015 to 2016, Communities and Local Government.

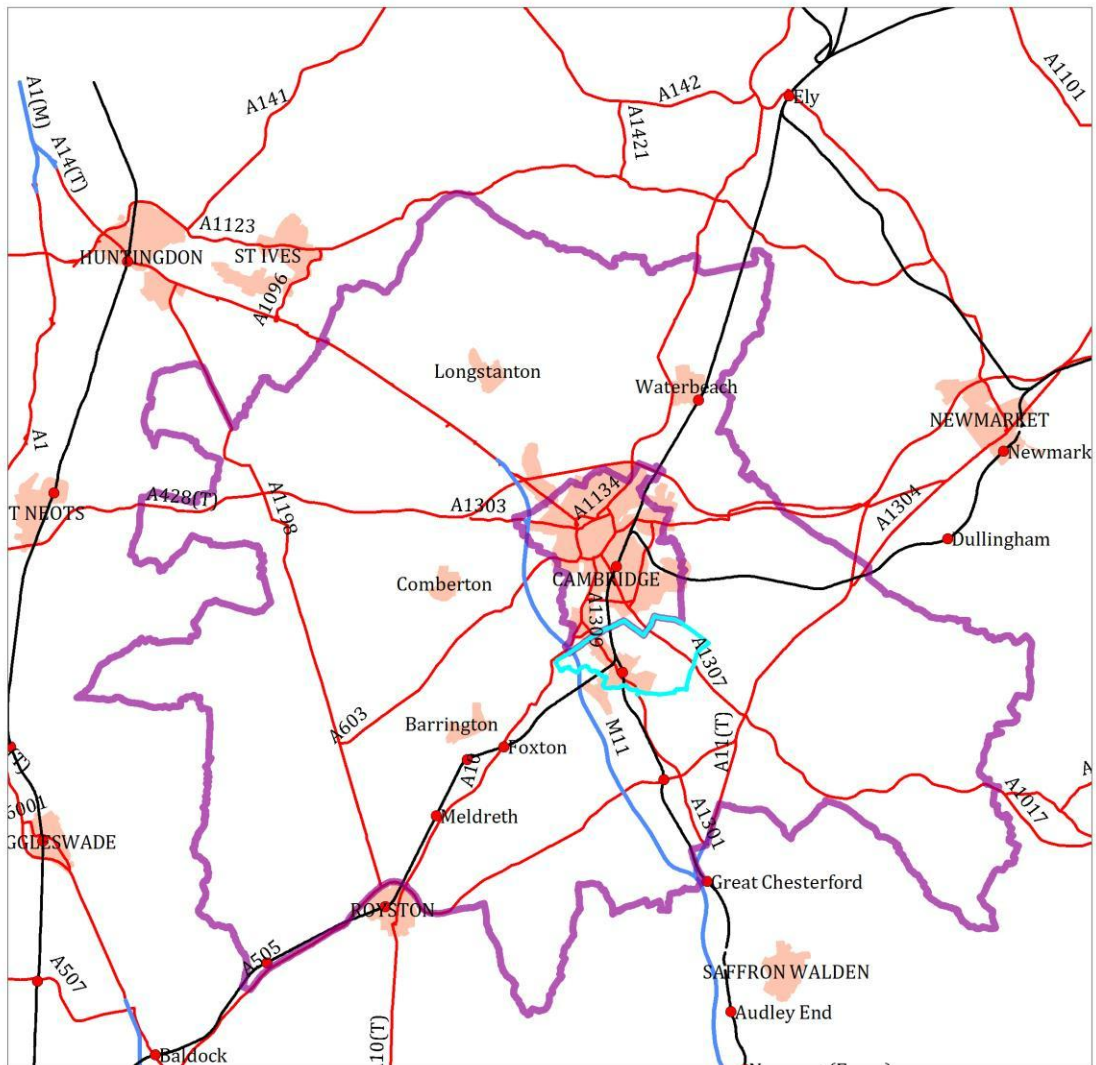
7.0 Summary of Findings and Conclusions

- 7.1 The analysis above indicates that key workers in the research industry and healthcare sector are facing significant challenges in the affordability of housing in the context of a housing market that is only marginally affordable to households on mean wages. Furthermore, workers in those industries are unlikely to be able to claim housing benefit to support their housing needs in the private sector because their earnings are too high, and are also unlikely to be allocated affordable housing as a consequence of allocation policies favouring those more in need.
- 7.2 This remains a key challenge for the locality and for employers in being able to attract and retain staff. Analysis indicates that there are very limited housing options for households earning between £20,500 and £44,000 per annum.
- 7.3 Being able to recruit and retain staff goes to the heart of the competitiveness of the internationally renowned Cambridge sub-region and the research and healthcare sectors associated with the knowledge centre. An attractive housing proposition in terms of accessibility, quality and affordability is a key component of that.
- 7.4 Whilst there may be more affordable housing options available in the Cambridge Broad Rental Market Area, these are substantially further away from Cambridge with the associated issues of commuting long distances. The spatial strategy employed by the planning authority, in responding to the evident constraints, is one of dispersal with development primarily focussed outside of the greenbelt.
- 7.5 The site promoted by Lands Improvement and Pigeon Land represents one of the very few options available close to Addenbrooks and other key employment areas for the research industry where specific provision can be made and is proposed to be made for workers necessary to sustain the vitality of the sector. The mechanisms to promote such housing should be simple to operate within a Section 106 Planning Obligation which would include a qualifying employment criterion to test eligibility for access to the key worker housing provided. This would run alongside of more traditional obligations surrounding the agreed level of affordable housing provision determined through the planning process.

Map 1: South Cambridgeshire Housing Market

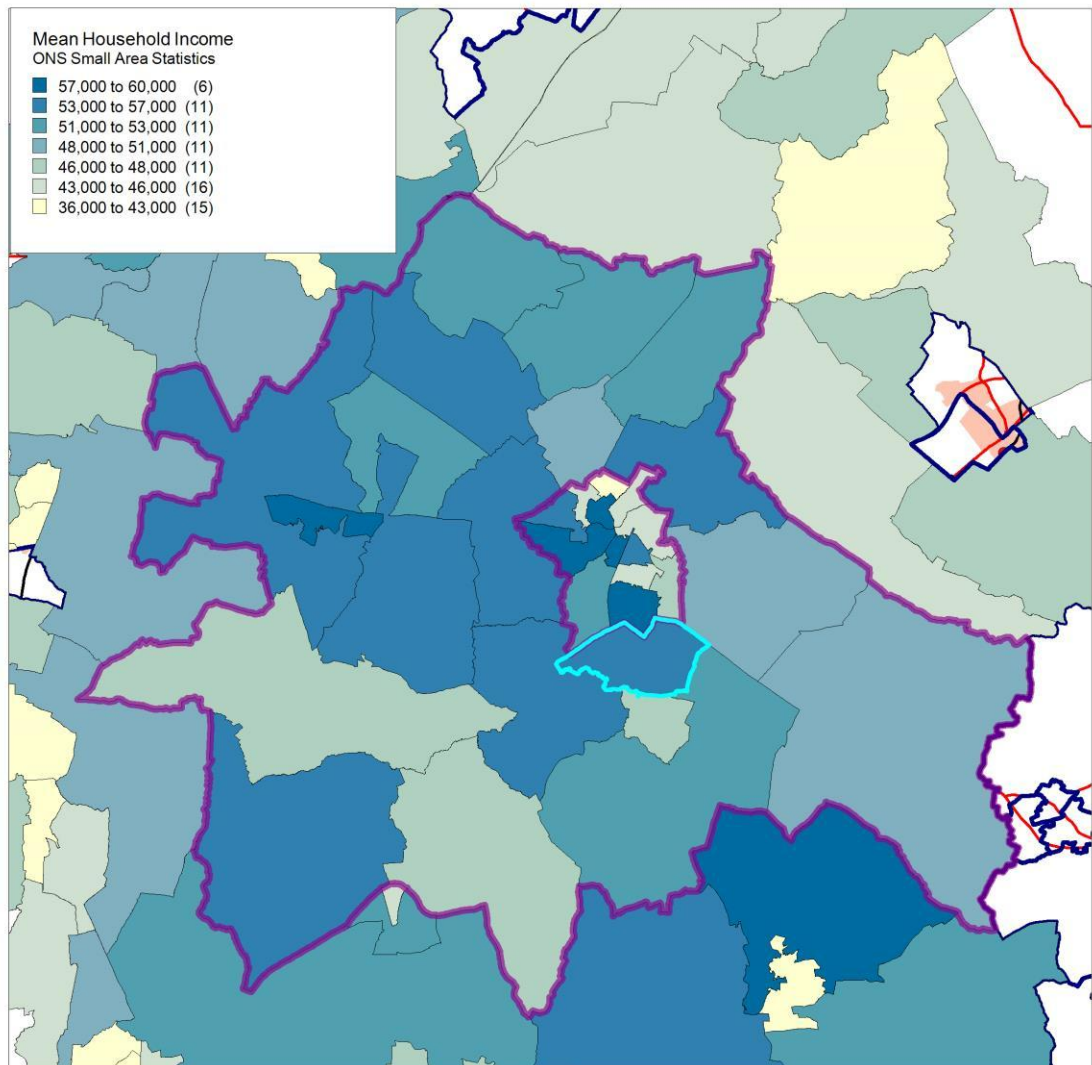
South Cambridgeshire District Council boundary shown in purple.

South Cambridgeshire 012 MSOA boundary shown in turquoise.



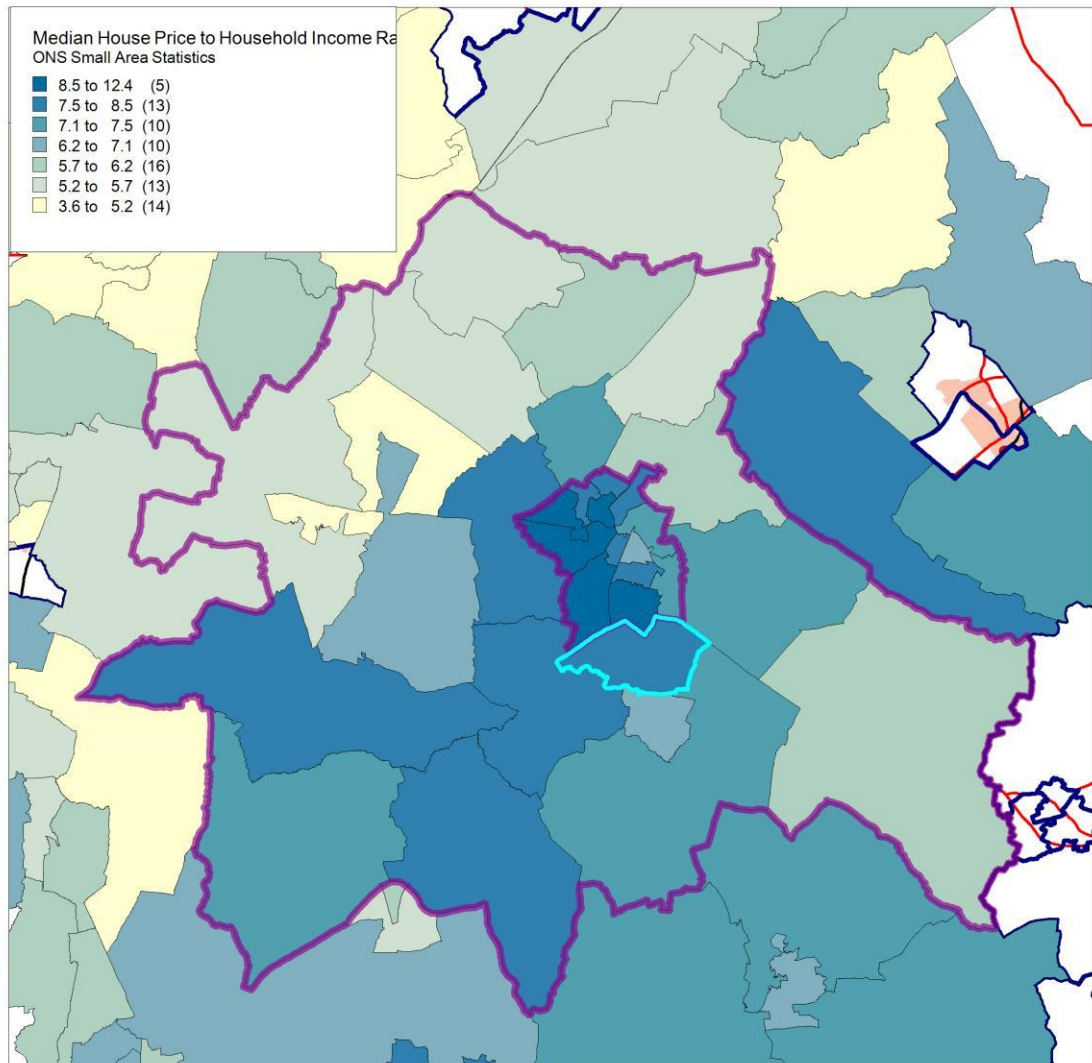
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Map 2: Mean Household Income



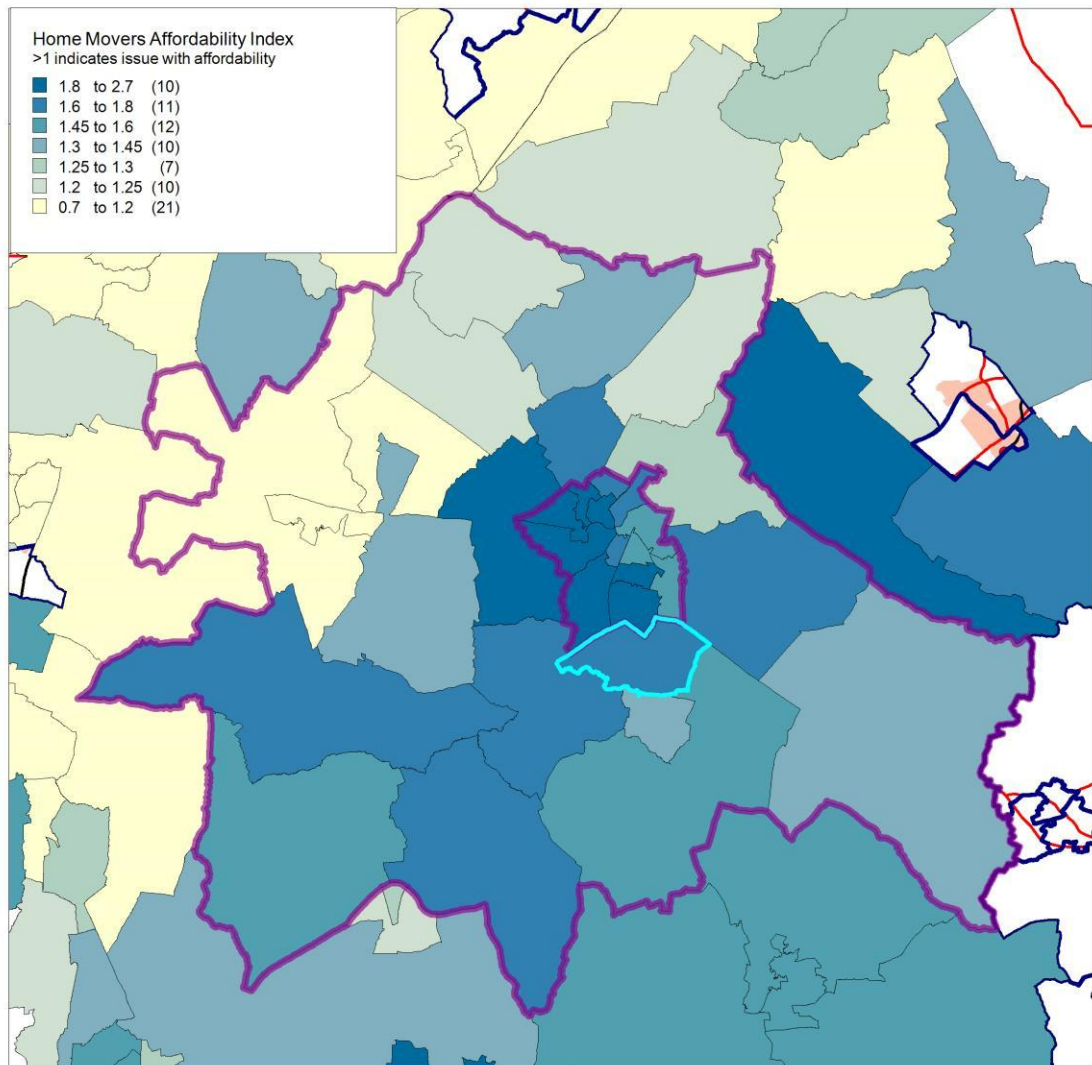
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Map 3: Median House Price to Income Ratio



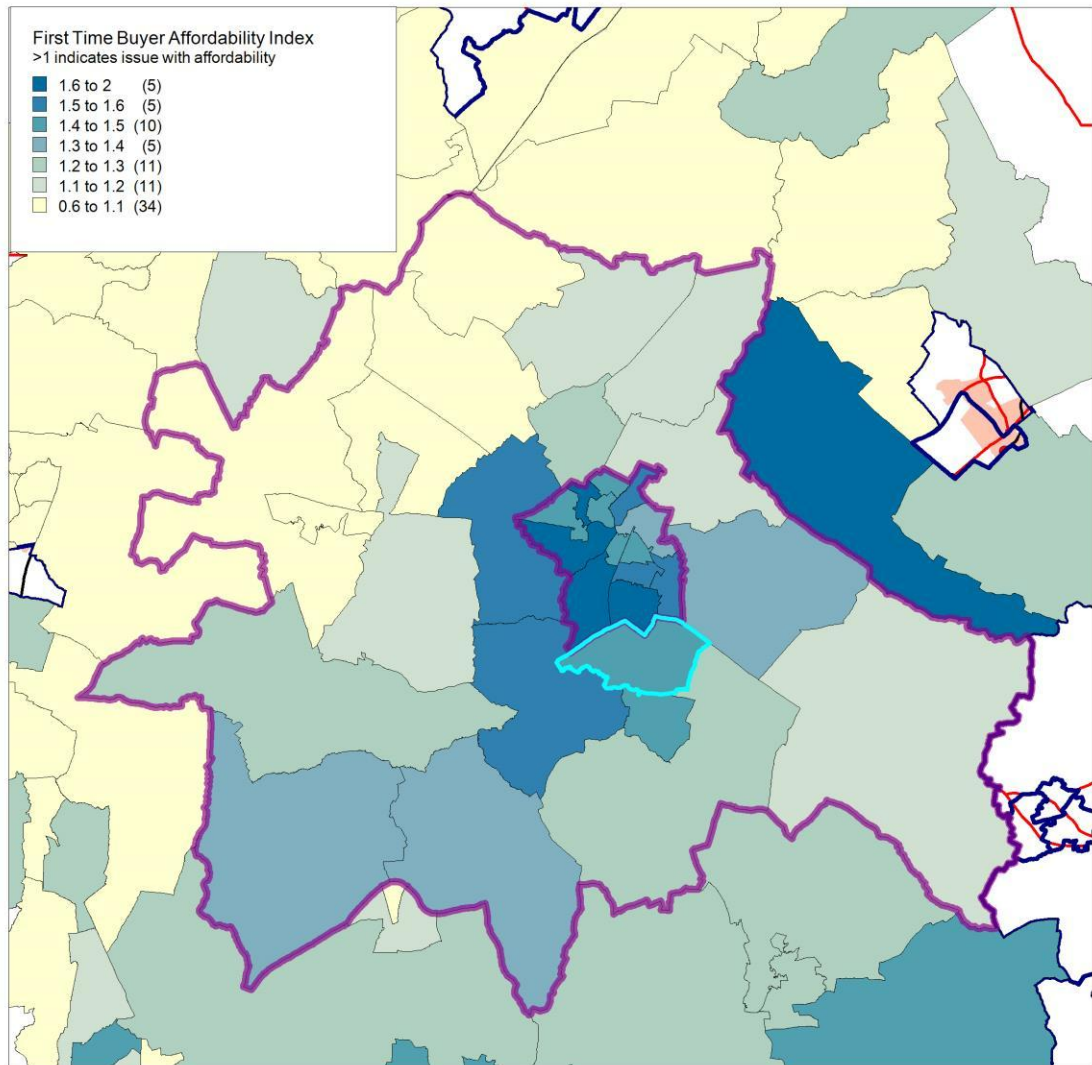
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Map 4: Home Movers Affordability Index



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Map 5: First Time Buyers Affordability Index



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Appendix 3

Preliminary Landscape and Visual Appraisal and Green Belt Review

CAMBRIDGE SOUTH

Green Belt Review

Prepared for: LIH Cambridge South S.a.r.l. and Pigeon
Land Ltd

SLR Ref: 403/07248/00001
Version No:Rev2
May 2017



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1.0 Introduction

SLR Consulting Ltd (SLR) was appointed by LIH South Cambridge S.a.r.l. and Pigeon Land Ltd (LIH/Pigeon) to carry out a Green Belt review of the Cambridge South site. The objective of the review was to determine which parts of the site contribute most to the functions of the Green Belt, as set out in paragraph 80 of the NPPF.

This assessment builds on existing work carried out by SLR, which includes a Review of the LDA Green Belt Assessment Methodology (Matter PM2, reference 25320, May 2016) and a Preliminary Landscape and Visual Appraisal (produced in March 2017).

In accordance with the findings of the SLR Review of Green Belt Assessment Methodology this assessment this Green Belt review follows three simple stages:

- Sub-sectors are identified based upon the character of the site (baseline information for this is drawn from the SLR Preliminary Landscape and Visual Appraisal);
- The sub-sectors have been assessed in relation to the NPPF functions of the Green Belt;
- The final output is a Green Belt assessment plan which more transparently reflects both the character of the landscape and the functions of the Green Belt as set out in paragraph 80 of the NPPF.

2.0 Methodology

The National Planning Policy Framework (NPPF) states that the essential characteristics of Green Belts are their openness and their permanence (paragraph 79). The purposes of the Green Belt are as follows (paragraph 80):

- To check the unrestricted sprawl of large built-up areas;
- To prevent neighbouring towns from merging one into another;
- To assist in safeguarding the countryside from encroachment;
- To preserve the setting and special character of historic towns;
- To assist in urban regeneration;

Green Belt boundaries must take account of the need for sustainable development, including provision of safeguarded land between the urban area and the Green Belt. Green Belt boundaries should follow “*physical features that are readily recognisable and likely to be permanent*”.

Table 1, (below), sets out the criteria for assessing the contribution of each sub-sector of the site, based upon four of the NPPF functions. The purpose of assisting urban regeneration applies to all land within the Green Belt and therefore has not been used to differentiate between sectors.

Table 1
Criteria for Assessing the Effects of Development on the Functionality of the Green Belt

Green Belt Purpose	Criteria for Assessment
To check the unrestricted sprawl of large built-up areas	<p>Does the site in itself act as a barrier to development spreading?</p> <p>Is the site part of a wider landscape unit that forms a strategic barrier to development spreading?</p> <p>Is the parcel free from development? Does the parcel have a sense of openness?</p>
To prevent neighbouring towns merging into one another	<p>Is the site the only gap between two settlements?</p> <p>Is the site part of a wider gap between two settlements? (If so what is the distance?).</p> <p>Is there evidence from maps, character assessments or site assessment of existing merging settlements? (For example, outlying buildings, ribbon, urban fringe characteristics).</p> <p>What is the visual perception of the gap between settlements? (Is there a clear sense of leaving one settlement and arriving somewhere else?).</p> <p>How would development on the site affect this perception?</p>
To assist in safeguarding the countryside from encroachment	<p>Does the site have any landscape/rural designations?</p> <p>Does the site have a rural land-use?</p> <p>Is the character of the site already influenced by urbanising elements, for example urban fringe uses, visible settlement edge, outlying structures, disturbed land? (Refer to existing character assessments and site assessment).</p> <p>What proportion of the site is already covered with buildings?</p> <p>Are there existing natural or man-made features / boundaries that would prevent encroachment of the countryside within or beyond the parcel in the long term? (These could be outside the parcel).</p>

To preserve the setting and special character of historic towns

What are special characteristics of nearby historic towns and how does the site contribute to them? (refer to existing character assessments and site assessment)

What is the character of the setting of nearby historic towns and how does the site contribute to this? Setting can be direct visual relationship with the historic core of the town or part of the sequential experience of entering the town on well-used routes.

Is the parcel partially or wholly within or adjacent to a Conservation Area within an historic town? Does the parcel have good intervisibility with the historic core of an historic town?

When assessing the contribution of each sub-sector a five point scale has been applied, ranging from very high contribution to very low contribution. Consideration is also given to a revised Green Belt boundary.

3.0 Results

Drawing CSGB1 illustrates the results of the Green Belt assessment. 8 sub-sectors were used to assess Green Belt function, and the boundaries of these take into account the findings of the Preliminary Landscape and Visual Appraisal (see drawing CS10). Fundamentally, landscapes to the north and east of Cambridge South are strongly influenced by the existing settlement edge and infrastructure, whereas areas to the south and south west, to the south of Stone Hill, are more intact, enclosed and rural.

Sub-sectors 1 and 4, at the north and north-west of the site, are already strongly influenced by urbanising elements, and consequently these areas do not provide a clear sense of openness, nor do they fully protect against encroachment or sprawl since there is already a strong visual perception of encroachment. Similarly sub-sectors 2, 5 and 6 are enclosed by the existing settlement edge, and there is therefore already a visual perception of encroachment by built development in these areas. Sub-sector 3 is a transitional area, moderately influenced by views of the settlement edge but also with some rural characteristics and a perception of openness.

Sub-sector 8 is strongly open and rural in character, with well-developed, mature vegetation around the Granta. Sub-sector 7 is also predominantly open and rural in character, with the influence of existing built form often screened by the low ridge of Stone Hill as well as belts of mature vegetation. Sub-sectors 7 and 8 also provide a clear sense of separation between properties on Cambridge Road and those within Great Shelford, and are thus important in protecting against coalescence.

Whilst there is no longer a direct visual connection between the site and the historic core of Cambridge, sub-sectors 7 and 8 also provide a rural gateway to the city when approaching on the M11 from the south. Sub-sector 1 is already strongly influenced by views of existing buildings at Trumpington Meadows, as well as by the M11, junction 11 and Hauxton and Addenbrookes Road, and consequently does not perform this setting function to the same extent.

Drawing CSGB1 also defines a proposed new Green Belt boundary. This is informed by the clear change in landscape character across the site, but is also shaped by the screening landform of Stone Hill, existing field boundaries, and the boundary of the Scheduled Monument (see drawing CS10, preliminary LVIA).

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Cambridge South

A Preliminary Landscape and Visual Appraisal

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1.0 INTRODUCTION

SLR Consulting Ltd (SLR) was instructed by Lands Improvement Holdings PLC (LIH) and Pigeon Land Ltd (Pigeon) to undertake a preliminary Landscape and Visual Assessment (LVA) of a potential development site at Cambridge South, (the site), with a view to assessing whether the site is suitable for development and, if so, what the extent of development should be.

1.1 Methodology

This assessment has been carried out by an experienced Chartered Landscape Architect using the principles set out in the Guidelines for Landscape and Visual Impact Assessment (3rd Edition, 2013, also known as GLVIA3, produced by the Landscape Institute and Institute of Environmental Management and Assessment) and within the methodology set out in Appendix A. This is not, however, a full landscape and visual impact assessment, since the development proposals have not been defined at this stage: instead it examines the landscape and visual attributes of the existing site in order to determine whether the site has the capacity for development and, if so, what the likely extent of development could be.

The assessment is based upon a desk top assessment of relevant plans, guidance and character assessments, as well as site based assessment carried out in clear conditions in March 2017.

1.2 The Study Area

The site boundary for Cambridge South, and study area, is defined on drawing CS1. The study area was defined initially by desk top assessment and was then further refined by site assessment.

1.3 The Nature of Development which is Envisaged at Cambridge South

It is proposed that Cambridge South provides a suitable site for both employment uses related to the healthcare sector and life sciences, as well as residential development. The precise form of these uses has not been designed at this stage, but for the purposes of this assessment it has been assumed that it would comprise relatively dense, built form up to five storeys high for employment uses and up to three storeys for residential uses.

2.0 THE LANDSCAPE OF CAMBRIDGE SOUTH

2.1 Introduction

The following landscape assessment is based upon both a desk top assessment of existing character assessments and plans as well as a site based survey. In accordance with GLVIA3 the main landscape receptors, (individual landscape elements, aesthetic characteristics, overall character), which have the potential to be affected by the proposed development have been identified and their sensitivity to the proposed development has been assessed by considering their value and susceptibility.

2.2 Landscape and Landscape-related Designations

Drawing CS1 illustrates the landscape and landscape-related designations within the study area.

Cambridge South itself is not within, or immediately adjacent to, any designations based upon landscape character, such as Areas of Outstanding Natural Beauty or National Parks. At the south west of Cambridge South is a Scheduled Monument, which is crossed by the M11 motorway. The site is also within the Green Belt, which is not a landscape designation but rather a spatial planning policy with the strategic objective of retaining the structure and identity of settlements.

2.3 Existing Landscape Character Assessments

There is a nested series of existing character assessments which provide a useful context to the character of the site. Drawings HG2 and HG3 summarise the classification provided by these assessments, but further details of each are set out below.

At a regional scale the application site is included on the northern edge of Natural England's Natural Character Area (NCA) 87, East Anglian Chalk (Natural England, 2014). The key characteristics of this character area include the following:

- Gentle river valleys of the Rivers Rhee and Granta;
- Rolling chalk downland, mostly in arable production, with sparse tree cover;
- Remnant chalk grassland, including road verges;
- Archaeological features including Neolithic long barrows and bronze age tumuli;
- Settlement focused in small towns and villages.

It is noted within the Natural England assessment that "*settlement expansion and by-passes have changed the scale and character of the historic market towns and development pressures are likely to increase. There is huge pressure to develop the Cambridge southern Green Belt with modern town buildings...*"

Within the Cambridge Inner Green Belt Boundary Study (LDA, November 2015) the north and western sections of Cambridge South are classified as part of character area 4C, Rhee and Bourn Valleys, whereas the eastern and southern sections of the site are included within character area 4B, Granta valley. Drawing CS2 illustrates the extent of these character areas.

The Rhee and Bourn Valleys (4C) are described within the LDA study as having an overall appearance of being relatively flat, with long views. They are described as having "*an open and tranquil character*" and a "*strongly rural feel*", with small areas of modern housing on the

edges of villages “*but generally villages have retained their small scale and historic character*”. Mention is made of views from the M11, and it is stated that the historic core of the city is “*clearly visible*”, with this low lying landscape forming the foreground to these views.

The Granta Valley (4B) is described as having a gentle topography common to the river valley landscape type, but is distinguished by a more wooded appearance and by the suburban character of villages. The woodland provides a more enclosed landscape, with long views often screened and an increased sense of “greenness” in the landscape.

2.4 The Landscape of the Site and its Context

GLVIA3 recommends that a landscape character assessment should be carried out as part of the baseline study (paragraph 5.4). This should consider:

- The elements that make up the landscape (physical, land cover and the influence of human activity)
- Aesthetic and perceptual aspects
- The overall character of the area.

An assessment of the landscape baseline is set out in the following paragraphs, and is illustrated with the aid of photographs. Viewpoint locations for these photographs are illustrated on drawing CS3, which also includes an aerial view of the site.

2.4.1 Individual Elements and Features

Cambridge South contains gentle ridges along its eastern and south-eastern edges, with elevations over 20m AOD, including Stone Hill, which lies adjacent to the fields of the rugby club (see for example the view from viewpoint 7, shown on drawing CS7). The northern, western and south western parts of the site are largely flat or gently undulating, with elevations below 15m AOD. At the northern and western edges of the site Addenbrookes Road, Hauxton Road, and the M11 (particularly junction 11) are often elevated above the site, with short, man-made slopes grading to the site boundary.

There are no water bodies on site, but the River Cam, or Granta, forms the southern boundary of the site.

The site is currently in arable use, and many of the hedgerows within and around the edges of the site have been lost or breached, creating large, open fields. There are no trees on the site, but the southern end of the site is partly characterised by views towards woodland and shelterbelts (see for example views on drawings CS8 and CS9).

There are also no buildings or highways within the site, but the long views afforded by the low landform at the north and west of the site allow clear views towards existing houses on Shelford Road, at Trumpington Meadows, and the embankments and traffic of the Hauxton Road, junction 11 of the M11, as well as the carriageway of the motorway (see for example views on drawings CS4, CS5, and CS6). Noise from these roads is also a notable characteristic of the northern and western flanks of the site.

There are no formal rights of way across the site. However, there is a permissive footpath which runs across the centre of the site (see drawing CS1) as well as a permissive bridleway which runs along the north bank of the Cam.

2.4.2 Aesthetic and Perceptual Aspects

The northern part of the site is large scale, with open views to the west and north. Movement of traffic, noise and prominent buildings on the skyline are characteristics of this area, as well as a degraded field structure. There is a strong sense of being on the edge of Cambridge, with the dense, three to five storey developments of Trumpington Meadows very apparent as well as lighting columns and frequent HGVs on the busy roads.

The southern end of the site is more enclosed by the low convex ridge of Stone Hill, as well as by tree groups along the Cam and around Great Shelford. This part of the site is therefore medium scale, and the visual prominence of trees on the skyline gives this area a more rural, remote feel.

The site itself is mainly simple in form and colour, although once more the influence of movement and existing buildings at the north and west of the site introduce more variety, whereas at the south of the site the influence of existing settlement is generally more remote, and trees most frequently form the skyline.

2.4.3 Overall Character

The independent landscape character assessment supports the division of the site into two character areas, as concluded within the LDA study and as illustrated on drawing CS2. The LDA study is also correct that the Granta Valley character area is more enclosed and characterised by views towards tree groups, whereas the Rhee and Bourn Valleys character area is more large scale, with long views.

However, whereas the LDA study concludes that the wider Rhee and Bourn valley character area is strongly rural and character, it is clear from this more detailed assessment that the part of this character area within the site is strongly influenced by the existing settlement edge to the north and east, as well as by movement, noise and engineered structures associated with the main roads to the north and west. Similarly, this area is not characterised by villages with a historic character, but instead by views towards often dense suburban and urban development.

2.5 Sensitivity of the Landscape

In accordance with GLVIA3 sensitivity of the landscape at Cambridge South is determined by combining its value with its susceptibility to the type of development proposed.

2.5.1 Value of the Landscape

In determining the value of landscapes GLVIA3 recommends that the starting point should be to consider landscape-related designations. In this context it is important to note that no part of the application site is included within a statutory or non-statutory landscape designation, although a portion of the south west section of the site (as shown on drawing CS1) is designated as a Scheduled Monument.

GLVIA3 states that the value of undesignated sites should also be considered, and box 5.1 provides a helpful guide for assessing these sites. Using these criteria, (see table 1, below), it has been concluded that the value of the Rhee and Bourn Valleys section of the site is generally low, with the exception of the Scheduled Monument in the south west corner. The value of the Granta Valley section of the site is community, mainly due to the higher scenic quality and better condition of the landscape.

**Table 1
 EVALUATION OF THE VALUE OF CAMBRIDGE SOUTH IN ACCORDANCE WITH
 BOX 5.1 OF GLVIA3**

Factor	Assessment	Notes
Landscape Quality (Condition)	<ul style="list-style-type: none"> • Low for Rhee and Bourn Valleys CA • Community for Granta Valley CA 	In the Rhee and Bourn Valleys character area, many of the hedgerows are breached or have been removed, and there are long views towards prominent existing development to the west, north and east. The condition of the landscape improves within the Granta Valley character area.
Scenic Quality	<ul style="list-style-type: none"> • Low for Rhee and Bourn Valleys CA • Community for Granta Valley CA 	Similarly, scenic quality is poor in the Rhee and Bourn Valley character area due to the strong influence of existing roads and buildings. Scenic quality improves in the Granta Valley area, at the south of the site, which is more enclosed and strongly influenced by views towards woodlands and trees.
Rarity	Low	Similar views are also to be found to the north of Hauxton Road.
Representativeness	Low	These two sections of the Rhee and Bourn Valleys character area, and the Granta Valley character area, are more strongly influenced by the existing settlement edge than other parts of these character areas.
Conservation Interests	Local Authority at the south west of the site, low elsewhere	Local Authority value in the vicinity of the Scheduled Monument, but not recorded ecological or heritage value elsewhere on the site.
Recreation Value	Community	No formal public access to the site, but permissive rights of way.
Perceptual aspects	Community	Openness will be valued by a few residents with views close to the site, as well as by walkers using permissive rights of way
Associations	Negligible	No associations in literature, art or other media.

2.5.2 Susceptibility of Landscape Character to the Proposed Development

The susceptibility of the landscape to the type of development proposed varies across the site. At the north-east, north and west of the site, which is mainly within the Rhee and Bourn Valley character area, the degraded state of the landscape structure combined with the prominence of built development and highways to the east, north and west makes this area less susceptible to significant adverse effects as a result of further development.

To the south, largely within the Grant Valley character area, the more enclosed landscape is more influenced by woodland and trees, with visible houses often seen below the tree line. Traffic noise and the movement of vehicles are also less obvious in this part of the site.

In summary, the northern and western parts of the site, mainly within the Rhee and Bourn Valleys character area, has a low susceptibility to the type of development proposed, whereas the southern section of the site, mainly within the Granta Valley character area, has a medium susceptibility to the type of development proposed.

2.5.3 Sensitivity of Landscape Receptors at Cambridge South

The overall sensitivity of the landscape at Cambridge South to the type of development proposed can be defined by combining susceptibility with value.

For the north and western sections of the site – with the exception of the Scheduled Monument – which is largely within the Rhee and Bourn Valleys character area, the susceptibility is low and the value is also low. Landscape sensitivity in this part of the site is therefore low overall.

For the southern part of the site, which is largely within the Granta Valley character area, the susceptibility is medium and the value is community. The sensitivity of the landscape in this part of the site is therefore medium overall.

2.5.4 The Landscape of Cambridge South: Development Potential

Based upon this preliminary landscape assessment, the northern and western sections of the site, which are largely within the Rhee and Bourn Valleys, have a low sensitivity to the type of development proposed, and therefore greater capacity to accommodate such development.

In contrast, the landscape at the southern end of the site is more intact, enclosed and rural, and therefore has a higher sensitivity to the type of development proposed and consequently a lower capacity to accommodate this development.

3.0 VISIBILITY AND VIEWS OF CAMBRIDGE SOUTH

3.1 Introduction

Overall visibility of Cambridge South has been determined by both desk top analysis and field study. The field survey was undertaken in March, when many of the trees in the locality were still without foliage. The field assessment was thus able to consider the worst case visibility of the proposed development.

The range of available views within and around the site is described with the aid of ten illustrative viewpoints, the location of which is set out on drawing CS3. Photographs from the viewpoints are included in drawings CS4 to CS9.

In accordance with the recommendations of GLVIA3 the sensitivity of the potential visual receptors to the type of development envisaged has been determined by assessing both the value of the viewpoints and the susceptibility of the receptors that would use them.

3.2 Overall Visibility

Visibility of Cambridge South does not extend far beyond the boundaries of the site itself, due to a combination of buildings, vegetation and landform.

To the north and north east views of Cambridge South are contained by the housing at Trumpington Meadows and along Shelford Road (drawings CS5 and CS6 illustrate the strong visual containment provided by these properties). To the north-west there is visibility from Hauxton Road and also open ground to the north of this road. Junction 11 of the M11 is a grade separated junction and therefore contains views of the site from this direction.

To the west there are clear views of the site from the M11, (drawing CS4 illustrates that the motorway is often at grade or above the levels of the site and therefore affords clear views). However, views from Hauxton are screened by well-established vegetation (the aerial photograph on CS3 illustrates the strong network of vegetation to the east of Hauxton). Similarly views from the south west are screened by mature tree belts along the Cam (see for example drawing CS9, which illustrates the maturity and depth of planting in this locality).

To the south views extend across the railway line and towards the settlement edge of Great Shelford (drawing CS8 illustrates the view from the site towards Great Shelford, which indicates that there would be views largely from first floor windows). To the south-east and east of the site vegetation to the rear of properties on Cambridge Road, and alongside the Shelford Rugby Club often contains views (see for example drawing CS7), although there is one glimpsed view from Cambridge Road itself. There are also glimpsed views from White Hill, further to the east.

3.3 Potential Visual Receptors

Within the visual envelope of the site the following types of visual receptors have the potential to experience changes in their views:

- Existing residential receptors (north of the site, at Trumpington meadows, east of the site from properties on or near Shelford Road and Cambridge Road, and more distant views from Great Shelford, to the south);
- Pedestrians and cyclists on Hauxton Road, Addenbrookes Road and a short section of Shelford Road;

- Walkers using the permissive rights of way which cross the site;
- Braishfield Road and the footpath through the Hillier Gardens and Arboretum, particularly at its junction with Jermyns Lane;
- Vehicle users on Hauxton Road, Addenbrookes Road and a short section of Cambridge Road, junction 11 of the M11 and the M11 itself.

3.3.1 Residential Receptors

Residents at Trumpington Meadows would be able to obtain clear views across the site, particularly from first floor windows or above (drawing CS5 illustrates the open views that are available from these properties over Addenbrookes Road southwards towards the site). However, the foreground to these views already contains the busy Addenbrookes Road, as well as views in the middle ground of housing on Shelford Road.

Drawing CS6 (viewpoint 5) illustrates that properties on the Shelford Road, and Westfield Road, would have clear views across the site from ground and first floor windows. However views from properties on the Cambridge Road, and at Stonehill Road, are often largely screened by existing vegetation.

As viewpoint 8 on drawing CS8 illustrates, views from properties in Great Shelford are distant, although if the southern edge of the site were to be developed this would be visible from both ground and first floor windows.

3.3.2 Cyclists, Pedestrians and Walkers

With regards to cyclists, there is the potential for clear views across the north of the site from the cycle path along Addenbrookes Road, although there is no separate cycle path along Hauxton Road as viewpoint 2 on drawing CS4 illustrates. Other views for cyclists are limited to glimpses from Cambridge Road, to the east.

For pedestrians there is also the potential for clear views from Addenbrookes Road, although there is no pavement along Hauxton Road (see viewpoint 2, CS4). Other views from pavements are limited to glimpses from Cambridge Road.

For walkers – that is pedestrians using footpaths in a more rural context – there are extensive views across from the permissive rights of way which cross the site, as identified on drawing CS1. As drawing CS7 illustrates, the gentle ridge of Stone Hill provides a visual divide across the site, such that paths to the north and west of this ridge often have visibility towards the M11 and Trumpington Meadow, whereas paths to the south and east of the ridge have views contained by Great Shelford and Cambridge Road to the east.

3.3.3 Travellers on Roads

There are clear views across west of the site for drivers and passengers on the M11 and at junction 11, although these views no longer extend towards the historic core of Cambridge (as mentioned in the LDA study, see section 2.0, above), as the development at Trumpington Meadows screens views in this direction. There are also clear views from Hauxton Road and Addenbrookes Road across the north of the site.

Views from Shelford and Cambridge Roads are limited to a few glimpses at gaps between houses, and there are no views from Stonehill Road or Westfield Road.

3.4 Assessment of Sensitivity of Visual Receptors

In accordance with GLVIA 3 (see paragraphs 6.31 to 6.41) the sensitivity of visual receptors to the proposed development is determined by combining their value with their susceptibility.

3.4.1 Value of Visual Receptors

In identifying potential value of visual receptors, as for landscape receptors, the starting point is designations. In this regard it is again important to note that none of the study area is included within a designation based upon the quality of the landscape or views. There are also no protected views in the locality, although as has been noted in section 2.0 of this report the LDA study states that it is possible to obtain views of the historic core of Cambridge from the M11.

It is also important in this context to recognise that the paths which cross Cambridge South are permissive: they do not have the same protection as formal rights of way, and commensurately should not be accorded the same value as these.

None of the views within or around the site has particular cultural significant either: there are no specific references in books or art, or guide books, for example.

The value of viewpoints in and around the site is therefore low.

3.4.2 Susceptibility of Visual Receptors

Residential receptors are regarded as being more susceptible to changes in views, particularly where ground floor views are affected since these are normally the locations for living rooms. It is notable, however, that upper floors on houses at Trumpington Meadows also have balconies that are orientated towards the site.

Cyclists have a medium level of susceptibility to the proposed development, as they have only transitional views and, in this particular case, would be viewing the site from a suburban context. Pedestrians on Addenbrookes Road and Cambridge Road have more opportunity to enjoy views, although they too would be viewing from a largely suburban context. The susceptibility of these viewers is therefore medium to high. The susceptibility of walkers on the site is high, as these people are more likely to be focused on views of the countryside and they also have more time to appreciate these views.

Users of roads around the site are generally of low susceptibility to the proposed development, since these are busy roads set within a largely suburban context, and views are transitional in nature. Users of the M11 have a particularly low susceptibility as this is a fast moving route with heavy traffic.

3.4.3 Sensitivity of Visual Receptors in and around Cambridge South

The most sensitive visual receptors around the site are the residents at Great Shelford, Shelford Road and Trumpington Meadows, since these are the areas where it is possible to see Cambridge South from living rooms.

Of medium to high sensitivity are the walkers that use the permissive rights of way on the site, since although these have a high susceptibility the value of these informal paths is only medium. All pedestrians and cyclists which uses roads around the site are of medium sensitivity to the development.

Vehicle users on roads around the site are of low sensitivity to the proposed development.

3.5 Visibility and Views at Cambridge South: Development Potential

As with all development which extends an existing settlement, development at Cambridge South has the potential to adversely affect a number of viewers around the site. Residential receptors at the northern and north eastern end of the site are particularly sensitive to the development, as are those in Great Shelford.

Walkers who use the permissive rights of way across the site are also sensitive to development, although cyclists and pedestrians on roads around the edges of the site are less likely to be affected to the same extent.

Drivers on roads, and in particular the M11, have a low sensitivity to the proposed development, since their views are transitional and these are busy highways. There is no potential for views from the M11 towards the historic core of the city to be interrupted by development at the site since Trumpington Meadows already screens these views.

For all of these potential visual effects there is ample opportunity to introduce mitigation measures. For example, landscape buffers could be established adjacent to existing housing to help protect residential views. Permissive footpaths and bridleways could be formalised and set within green ways. There is also potential to use the low ridge at Stone Hill to help screen development: for example, if development were to be concentrated at the northern end of the site, Stone Hill would screen the majority of views from Great Shelford and the more rural paths around the Cam.

4.0 DISCUSSION AND CONCLUSIONS

A preliminary landscape and visual appraisal has been carried out by an experienced landscape architect to determine whether land at Cambridge South has capacity to accommodate development, and if so, what the extents of that development could be.

Initially landscape designations were reviewed, and it was noted that there were no landscape designations on Cambridge South or its context. The site is, however, within Green Belt, and a portion of the south west of the site is designated as a Scheduled Monument.

Having reviewed existing landscape character assessments prepared by Natural England and LDA it has been noted that the site includes two character areas: the open and broadly flat Rhee and Bourn Valleys character area to the north; and the more enclosed and undulating Granta Valley character area to the south. Site assessment has indicated that this character difference is indeed apparent, and that the Rhee and Bourn Valleys character area is strongly influenced by views of infrastructure and existing houses to the west, north and east, whereas the Granta character area has a more rural character, with less visual influence by the settlement edge and main roads.

Based upon this preliminary landscape assessment, the northern and western sections of the site, which are largely within the Rhee and Bourn Valleys, have a low sensitivity to the type of development proposed, and therefore greater capacity to accommodate such development. In contrast, the landscape at the southern end of the site is more intact, enclosed and rural, and therefore has a higher sensitivity to the type of development proposed and consequently a lower capacity to accommodate this development.

The preliminary visual assessment has concluded that the overall visibility of the site is largely contained within the site itself and the immediate locality. There are a number of sensitive visual receptors within and around the site, in particular residential receptors at Trumpington Meadows and on Shelford Road, Cambridge Road and further away at Great Shelford, as well as walkers on permissive rights of way which cross the site itself.

However it has been noted that a number of mitigation measures could be employed to address adverse visual effects on these more sensitive receptors. For example, landscape buffers could be established adjacent to existing housing to help protect residential views, and permissive footpaths and bridleways could be formalised and set within green ways. It was also noted that there is potential to use the low ridge at Stone Hill to help screen development: for example, if development were to be concentrated at the northern end of the site, Stone Hill would screen the majority of views from Great Shelford and the more rural paths around the Cam.

In summary Cambridge South does have capacity to accommodate development of the type envisaged with the aid of a simple landscape mitigation strategy. Drawing CS10 pulls together the main landscape and visual constraints in order to define a potential limit to development. This would safeguard the more sensitive landscapes to the south, including the scheduled monument. It would also enable the enhancement of the southern end of the site, including provision of more formal rights of way and enhancements to landscape structure.

APPENDIX A: CRITERIA AND DEFINITIONS USED IN ASSESSING LANDSCAPE AND VISUAL EFFECTS

Introduction

Landscape and Visual Impact Assessment (LVIA) is a tool used to identify the effects of development on “landscape as an environmental resource in its own right and on people’s views and visual amenity” (GLVIA3, paragraph 1.1). GLVIA3 paragraph 2.22 states, these two elements, although inter-related, should be assessed separately.

As GLVIA3 paragraph 2.23 states, professional judgement is an important part of the LVIA process: whilst there is scope for objective measurement of landscape and visual changes, much of the assessment must rely on qualitative judgements. It is critical that these judgements are based upon a clear and transparent method so that the reasoning can be followed and examined by others.

Impacts can be defined as the action being taken, whereas effects are the changes result from that action.

Landscape and visual effects can be positive, negative or neutral in nature. Positive effects are those which enhance and/or reinforce the characteristics which are valued. Negative effects are those which remove and/or undermine the characteristics which are valued. Neutral effects are changes which are consistent with the characteristics of the landscape or view.

Landscape Effects

Landscape, as defined in the European Landscape Convention, is defined as “an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors”, (Council of Europe, 2000). Landscape does not apply only to special or designated places, nor is it limited to countryside.

GLVIA3 recommends that the effect of the development on landscape receptors is assessed (paragraph 5.34). Landscape receptors are the components of the landscape that are likely to be affected by the scheme, and can include individual elements (such as hedges or buildings), aesthetic characteristics (for example tranquillity or openness), or, at a larger scale, the character of a defined character area or landscape type.

Judging landscape effects requires a methodical assessment of the sensitivity of the landscape receptors to the proposed development and the magnitude of effect which would be experienced by each receptor.

Landscape Sensitivity

Sensitivity of landscape receptors is assessed by combining the susceptibility of landscape receptors to the type of change which is proposed with the value attached to the landscape. (GLVIA3, 5.39)

Value Attached to Landscape Receptors

Landscape receptors may be valued at community, local, national or international level. Existing landscape designations provide the starting point for this assessment, as below.

The table below (A1) sets out the interpretation of landscape designations in terms of the value attached to different landscape receptors. As GLVIA3 notes (5.24) at the local scale of an LVIA study area it may be found that the landscape value of a specific area may be different to that suggested by the formal designation.

Table A1

Designation	Description	Value
World Heritage Sites	Unique sites, features or areas identified as being of international importance according to UNESCO criteria. Consideration should be given to their settings especially where these contribute to the special qualities for which the landscape is valued.	International
National Parks, AONBs, NSAs	Areas of landscape identified as being of national importance for their Natural Beauty (and in the case of National Parks the opportunities they offer for outdoor recreation).	National
Registered Parks and Gardens of Special Historic Interest	Gardens and designed landscapes included on the Register of Parks and Gardens of Special Historic Interest as Grade I or II.	National
Local Landscape Designations (such as Special Landscape Areas, Areas of Great Landscape Value and similar) included in local planning documents	Areas of landscape identified as having importance at the local authority level.	Local Authority
No formal designations.	Of value to local people	Community
No formal designations	Not used or viewed by residents or visitors	Negligible

Other areas of landscape, or individual elements, features or aesthetic aspects of the landscape contributing to its character, may not be formally designated but may nevertheless be valued. Many Local Planning Authorities have Landscape Character Assessments that, in the absence of a separate strategy, may be referred to in planning policies. Reference is also made where appropriate to the criteria in the Table below. This is based on Box 5.1 in GLVIA3 which in turn is based on the Landscape Character Assessment Guidance of 2002. Landscapes may be judged to be of local authority or community value on the basis of one or more of these factors. There may also be occasional circumstances where a landscape may be judged to be of national value.

An overall assessment is made for each receptor, based on an overview of the above criteria, to determine its value - whether for example it is comparable to a local authority landscape designation or similar, or whether it is of value to local people and communities.

For example, an intact landscape in good condition, where scenic quality, tranquillity, and or conservation interests make a particular contribution to the landscape, or where there are important cultural or historical associations, might be of equivalent value to a local landscape designation. Conversely, a degraded landscape in poor condition, with no particular scenic qualities or natural or cultural heritage interest is likely to be considered of limited landscape value.

Table A2

Factors considered in Assessing the Value of Non-Designated Landscapes

Factor	Criteria
Landscape Quality	Intactness of the landscape demonstrated by, among others: presence of characteristic natural and man-made elements, which are generally in good condition; absence of significant incongruous elements (or having only localised or temporary effects).
Scenic Quality	General appeal of the landscape to the senses through, for example, combinations of some of the following: a clear and recognisable sense of place; striking landform or patterns of land cover; strong aesthetic qualities which appeal to the senses, such as scale, form, colour and texture, simplicity or diversity, presence of ephemeral or seasonal interest, or notable sensory stimuli such as sounds and smells, qualities of light, or weather patterns.
Rarity	Presence of landscape character areas, types or features that are relatively rare in the local area.
Representativeness	Presence of locally important examples of particular landscape character areas or types or particular characteristics/feature/element.
Conservation Interests	Presence of some of the following where they contribute positively to experience of the landscape : natural heritage features, including geological or geomorphological features, wildlife, and habitats, including those that are designated or notified as SSSIs and features such as veteran trees or trees covered by Tree Preservation Orders; cultural heritage features, including buildings, especially listed buildings, settlements including conservation areas, gardens, parkland and other designed landscapes not on the register, and historic landscape types which demonstrate the time depth of the landscape.
Recreation Value	The extent to which experience of the landscape makes an important contribution to recreational use and enjoyment of an area.
Perceptual aspects	Opportunities to experience a sense of relative wildness and/or relative tranquillity in comparison with other local landscapes in the vicinity
Associations	Evidence that the landscape is associated with locally important written descriptions of the landscape, or artistic representation of it in any media, or events in history, or notable people or important cultural traditions or beliefs.

Susceptibility of Landscape Receptors to Change

As set out in GLVIA3 this means the ability of the landscape receptor to “*accommodate the proposed development without undue adverse consequences for the baseline situation and/or the achievement of landscape planning policies and strategies*”. Judgement of susceptibility is particular to the specific characteristics of the proposed development and the ability of a particular landscape or feature to accommodate the type of change proposed. Aspects of the character of the landscape that may be affected by a particular type of development include landform, skylines, land cover, enclosure human influences including settlement pattern; and aesthetic and perceptual aspects such as the scale of the landscape, its form, line, texture, pattern and grain, complexity, and its sense of movement, remoteness, wildness or tranquillity.

For example an urban landscape which contains a number of industrial buildings will have a low susceptibility to buildings of a similar scale and character. Conversely a rural landscape containing only remote farmsteads is likely to have a high susceptibility to large scale built development.

Table A3

Landscape Receptor Susceptibility to Change

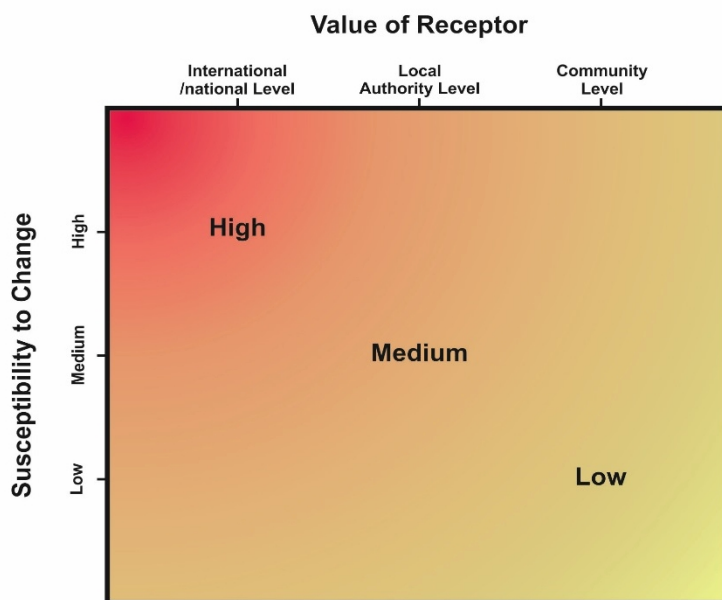
Susceptibility	Criteria
High	The landscape receptor is highly susceptible to the proposed development because the key characteristics of the landscape have no or very limited ability to accommodate it without undue adverse effects taking account of the existing character and quality of the landscape.
Medium	The landscape receptor is moderately susceptible to the proposed development because the relevant characteristics of the landscape have some ability to accommodate it without undue adverse effects, taking account of the existing character and quality of the landscape.
Low	The landscape receptor has low susceptibility to the proposed development because the relevant characteristics of the landscape are generally able to accommodate it without undue adverse effects, taking account of the existing character and quality of the landscape.

Defining Sensitivity

As has been noted above, the sensitivity of landscape receptors is defined in terms of the relationship between value and susceptibility to change. The diagram below summarises the nature of the relationship but it is not formulaic and only indicates general categories of sensitivity. Judgements are made about each landscape receptor with the diagram below only serving as a guide.

Fig A1

Levels of Sensitivity defined by Value and Susceptibility of Landscape Receptors



Magnitude of Landscape Change

The magnitude of landscape change is defined by assessing the size or scale of change, the geographical extent of the area influenced and the duration and reversibility of the change.

Size and Scale of Change

The size and/or scale of change in the landscape takes into consideration the following factors:

- the extent/proportion of landscape elements lost or added, and/or
- the degree to which aesthetic/perceptual aspects are altered; and
- whether this is likely to change the key characteristics of the landscape..

The criteria used to assess the size and scale of landscape change are based upon the amount of change that will occur as a result of the proposals, as described in the table below.

**Table A4
 Magnitude of Landscape Change: Size/Scale of Change**

Category	Description
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Category	Description
Major level of landscape change	The proposals will result in a large amount of change in landscape character and especially in the key characteristics. There will be major loss of or change to existing elements or aesthetic aspects of the landscape and or the introduction of major new and uncharacteristic elements or major change to aesthetic attributes
Moderate level of landscape change	The proposals will result in a moderate level of change in landscape character. There will be moderate loss of or change to existing elements or aesthetic aspects of the landscape and/or the introduction of moderate new and uncharacteristic elements or moderate change to aesthetic attributes
Minor level of landscape change	The proposals will result in only a minor level of change in landscape character. There will be minor loss of or change to existing elements or aesthetic aspects of the landscape and/or the introduction of minor new and uncharacteristic elements or minor change to aesthetic attributes
No or negligible landscape change	The proposals will result in no, or a barely discernible level of change in landscape character with very little loss of or change to existing elements or aesthetic aspects of the landscape and/or negligible effects from the introduction of minor new and uncharacteristic elements

Geographical Extent

The geographical extent of landscape change is assessed by determining the area over which the changes will influence the landscape. For example this could be at the site level, in the immediate setting of the site, or over some or all of the landscape character types or areas affected.

Table: A5

Magnitude of Landscape Change: Geographical Extent

Category	Description
Large extent of landscape change	The changes will extend over a large area and will influence landscape character at some distance from the site of the proposal and covering several landscape character types or areas
Medium extent of landscape change	The changes will extend over a moderate area and will influence landscape character at a medium distance from the site of the proposal, including the immediate setting of the site and the landscape character area within which it lies
Small extent of landscape change	The changes will extend over a small area and will influence landscape character only within the site itself or within the immediate vicinity of the site of the proposal

Duration and Reversibility of Changes

The duration of the landscape change is categorised in the table below, which considers whether they will be permanent and irreversible or temporary and reversible

Table A6
Magnitude of Landscape Change: Duration and Reversibility

Category	Description
Permanent/ Irreversible	Magnitude of change that will last for 25 years or more is deemed permanent or irreversible
Long term reversible	Effects that are theoretically reversible but will endure for between 10 and 25 years
Medium term reversible	Effects that are wholly or partially reversible and will last for up to ten years
Short term reversible	As above that are reversible and will last from 0 to 5 years - includes construction effects

Deciding on Overall Magnitude of Landscape Change

The three factors that contribute to assessment of the magnitude of landscape change may combine into categories as illustrated in figure A2, below.

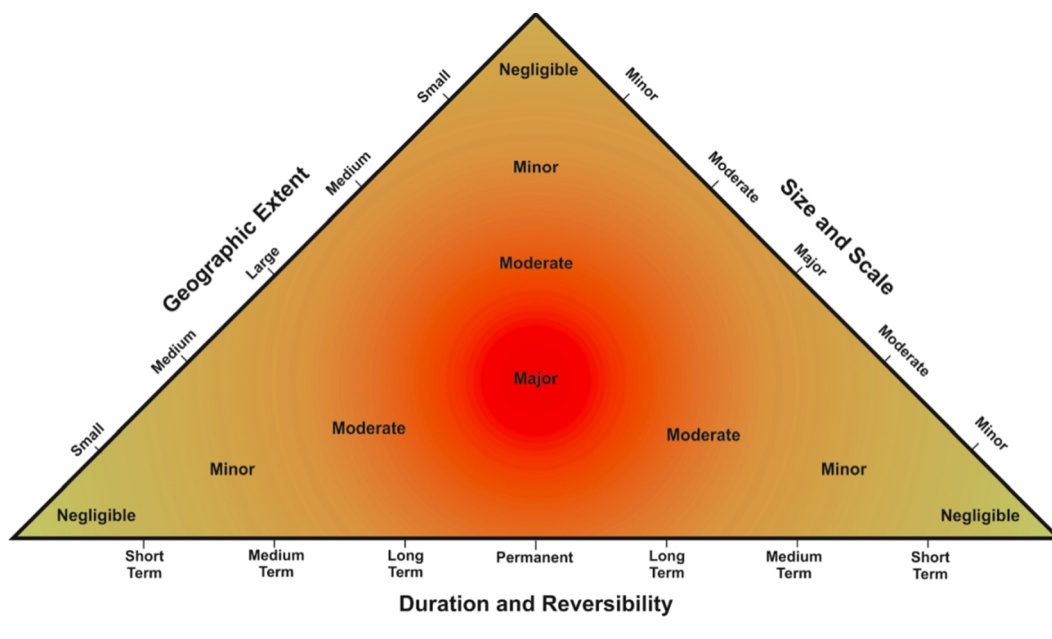


Figure A2: the Assessment of Magnitude of Landscape Change

Assessment of Landscape Effects and Significance

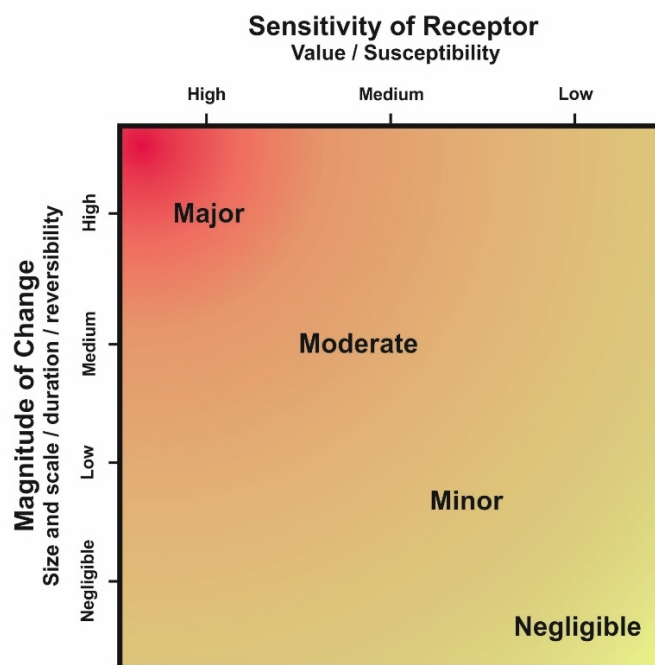
The assessment of landscape effects is defined in terms of the relationship between the sensitivity of the landscape receptors (value and susceptibility) and the magnitude of the

change. The diagram below summarises the nature of the relationship but it is not formulaic. Judgements are made about each landscape effect using this diagram as a guide.

Effects that fall in the red (darker) section of the diagram, that is those which are considered to be major and major/moderate effects by virtue of the more sensitive receptors and the greater magnitude of effects, are generally considered to be the **significant landscape effects**. Those effects falling outside the major, or major moderate categories are generally considered to be not significant.

Fig A3

Assessment of Landscape Effects and Overall Significance



Visual Effects

Visual receptors are the people whose views may be affected by the proposals. They generally include users of public rights of way or other recreational facilities; travellers who may pass through the study area because they are visiting, or living or working there; residents living in the study area, either as individuals or, more often, as a community; and people at their place of work.

Judging visual effects requires a methodical assessment of the sensitivity of the visual receptors to the proposed development and the magnitude of effect which would be experienced by each visual receptor.

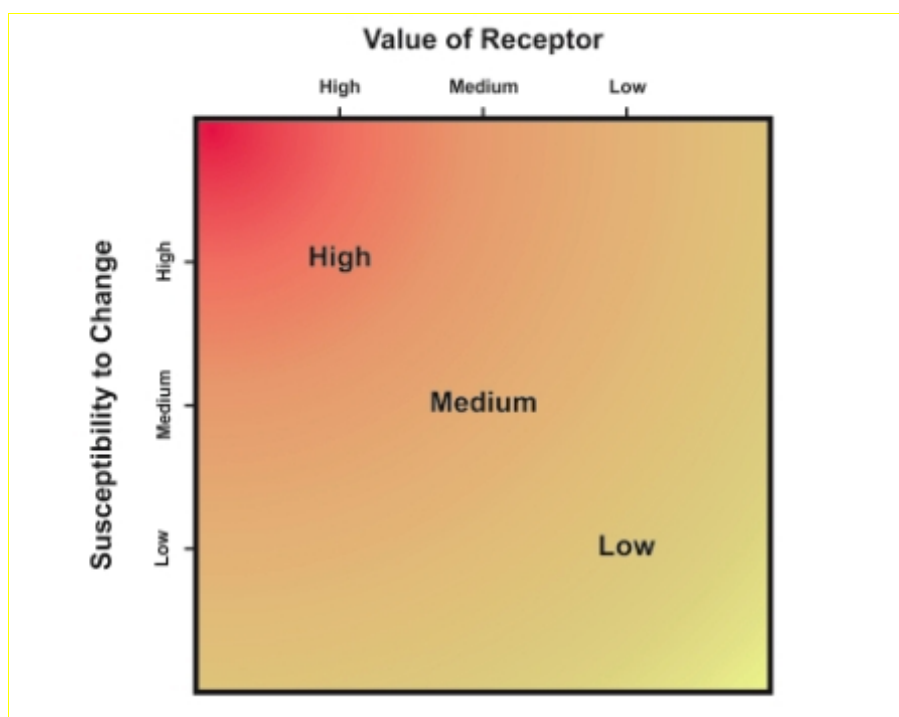
Viewpoints are chosen, in discussion with the competent authority and other stakeholders and interested parties, for a variety of reasons but most commonly because they represent views experienced by relevant groups of people.

Visual Sensitivity

The sensitivity of visual receptors is defined in terms of the relationship between the value of views and the susceptibility of the different viewers to the proposed change. The diagram below summarises the nature of the relationship but it is not formulaic and only indicates general categories of sensitivity. Judgements are made on merit about each visual receptor, with the diagram below only serving as a guide.

Fig A4

Sensitivity of Visual Receptors



Value Attached to Visual Receptors

Different levels of value are attached to the views experienced by particular groups of people at particular viewpoints. Assessment of value takes account of a number of factors, including:

- Recognition of the view through some form of planning designation or by its association with particular heritage assets; and
- The popularity of the viewpoint, in part denoted by its appearance in guidebooks, literature or art, or on tourist maps, by information from stakeholders and by the evidence of use including facilities provided for its enjoyment (seating, signage, parking places, etc.);
- Other evidence of the value attached to views by people.

The assessment of the value of views is summarised in the table below, in terms of high, medium and low value. These criteria are provided for guidance only and are not intended to be absolute.

Table A7
Value Attached to Views

Value	Criteria
High	Views from nationally known viewpoints, which may have some form of planning designation, or may be associated with nationally designated landscapes or important heritage assets, or be promoted in national sources such as maps and tourist literature, or be linked with important and popular visitor attractions where the view forms a recognised part of the visitor/residential experience, or which have important cultural associations. Often associated with facilities provided to enjoy the view.
Medium	Views from viewpoints of some importance at regional or local levels, which may have some form of local planning designation, or be associated with locally designated landscapes or areas of equivalent landscape quality, or be promoted in local sources, or be linked with locally important and popular visitor attractions where the view forms a recognised part of the visitor/residential experience, or which have important local cultural associations. Sometimes provided with facilities provided to enjoy the view.
Low	Views from viewpoints which have no formal planning status, are not associated with designated or otherwise high quality landscapes, or with popular visitor attractions or have known cultural associations. Views do not form a recognised part of the visitor/residential experience. No facilities provided to enjoy the view.

Susceptibility of Visual Receptors to Change

The susceptibility of different types of people to changes in views is mainly a function of:

- The occupation or activity of the viewer at a given viewpoint; and
- The extent to which the viewer's attention or interest may therefore be focussed on a particular view and the visual amenity experienced at a given view.

This follows the general guidance in GLVIA3 and assesses the susceptibility of different groups of viewers as in the table (ref) below. However, as noted in GLVIA3 “this division is not black and white and in reality there will be a gradation in susceptibility to change”. We therefore consider the susceptibility of each group of people affected on merit in each project and assessments are included in the relevant text in the report:

Table A8: Visual Receptor Susceptibility to Change

Value	Criteria
High	<ul style="list-style-type: none"> Residents; People engaged in outdoor recreation where their attention is likely to be focused on the landscape and on particular views; Visitors to heritage assets or other attractions where views of the surroundings are an important part of the experience; Communities where views contribute to the landscape setting enjoyed by the residents; and Travellers on scenic routes where the attention of drivers and passengers is likely to be focused on the landscape and on particular views.
Medium	<ul style="list-style-type: none"> Travellers on road, rail or other transport routes, where attention is generally less likely to be focused on views and visual amenity.
Low	<ul style="list-style-type: none"> People engaged in outdoor sport or recreation, which does not involve appreciation of views; People at their place of work, where the setting is not important to quality of working life; Travellers, where the view is incidental to the journey.

Magnitude of Visual Change

The magnitude of visual change is defined by assessing the size or scale of change, the geographical extent of the area influenced and the duration and reversibility of the change.

Size and Scale of Change

The criteria used to assess the size and scale of visual change are as follows:

- the scale of the change in the view with respect to the loss or addition of features in the view, changes in its composition, including the proportion of the view occupied by the proposed development and distance of view;
- the degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of factors such as form, scale and mass, line, height, colour and texture;
- the nature of the view of the proposed development, for example whether views will be full, partial or glimpses or sequential views while passing through the landscape.

The above criteria are summarised in the table below.

Table A8

Visual Magnitude of Change: Size/Scale

Category	Criteria
Major visual change	The proposals will cause a complete or very substantial change in the view, resulting from the loss of important features in or the addition of significant new ones, to the extent that this will substantially alter the composition of the view and the visual amenity it offers. Views often full or sequential.
Moderate visual change	The proposals will cause a clearly noticeable change in the view, resulting from the loss of features or the addition of new ones, to the extent that this will alter to a moderate degree the composition of the view and the visual amenity it offers. Views may be partial/intermittent.
Slight visual change	The proposals will cause a perceptible change in the view, resulting from the loss of features or the addition of new ones, to the extent that this will partially alter the composition of the view and the visual amenity it offers. Views may be partial only.
Negligible visual change	The proposals will cause a barely perceptible change in the view, resulting from the loss of features or the addition of new ones, to the extent that this will barely alter the composition of the view and the visual amenity it offers. Views may be glimpsed only.
No change	The proposals will cause no change to the view.

Geographical Extent

The geographical extent of the visual change identified at representative viewpoints is assessed by reference to a combination of the Zone of Theoretical Visibility (ZTV) and field work. The following factors are considered:

- the angle of view in relation to the main activity of the receptor;
- the distance of the viewpoint from the proposed development;
- the extent of the area over which changes would be visible..

Thus, low levels of change identified at representative viewpoints may be extensive in terms of the geographical area they are apparent from: for example, a view from Access Land may be widely visible from much or all of the accessible area, or may be confined to a small proportion of the area. Similarly, a view from a public footpath may be visible from a single isolated viewpoint, or over a prolonged stretch of the route. Community views may be experienced from a small number of dwellings, or affect numerous residential properties.

Table A9

Visual Magnitude of Change: Geographical Extent

Category	Description
Large extent of visual change	The proposal is continuously visible across a large proportion of the study area
Moderate extent of visual change	The proposal is visible across a moderate proportion of the study area and/or visibility is intermittent and not continuous
Slight extent of visual change	The proposal is visible from a limited number of locations in the study area
Negligible extent of visual change	The proposal is either not visible in the study area or visible only from one or two specific locations

Duration and Reversibility of Change

The duration of the visual change at representative viewpoints is categorised in the table below, which considers whether views will be permanent and irreversible or temporary and reversible.

Table A10
Visual Magnitude of Change: Duration and Reversibility

Category	Description
Permanent/ Irreversible	Landscape change that will last for over 25 years and are deemed irreversible
Long term reversible	Change that will endure for between 10 and 25 years and are potentially, or theoretically reversible.
Medium term reversible	Change that will last for up to ten years and are wholly or partially reversible.
Short term reversible	Change that will last from 0 to 5 years and are reversible- includes construction effects

Deciding on Overall Magnitude of Visual Change

The three factors that contribute to assessment of the magnitude of visual change are combined as shown in the diagram below (fig A5).

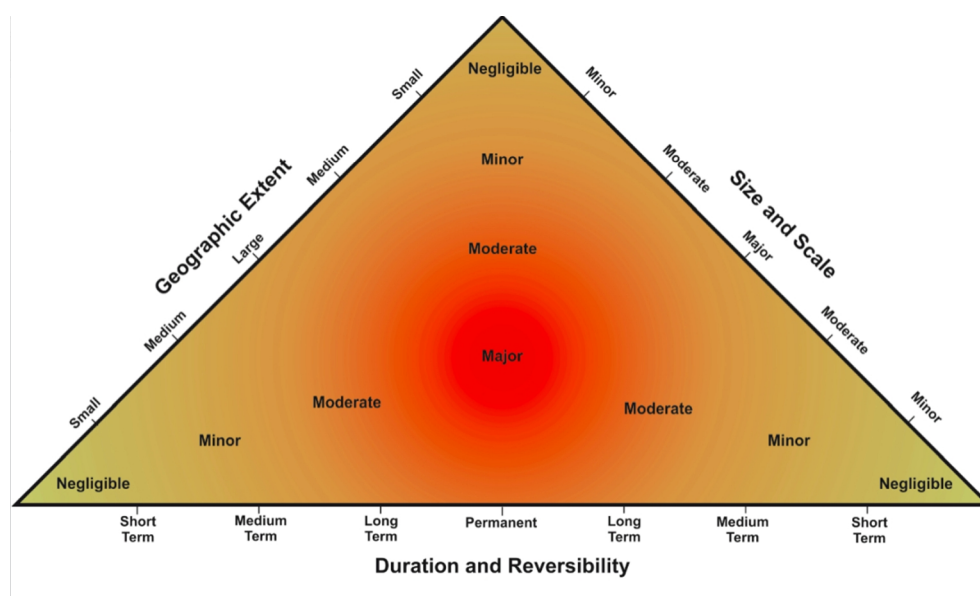


Figure A5: Assessment of Magnitude of Visual Change

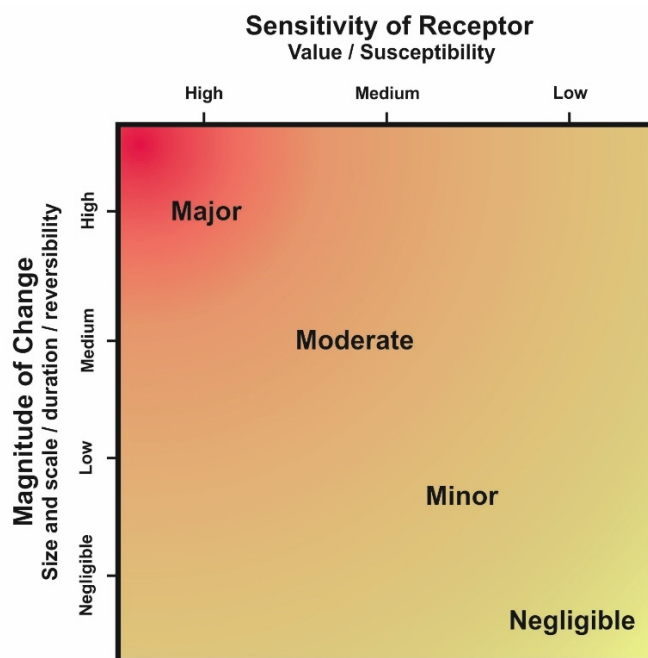
Assessment of Visual Effect and Significance

The assessment of visual effects is defined in terms of the relationship between the sensitivity of the visual receptors (value and susceptibility) (as in A14 to A18) and the

magnitude of the change (as in A19 to A21). The diagram below (figure A6) summarises the nature of the relationship but it is not formulaic and only indicates broad levels of effect. Judgements are made about each visual effect using this diagram as a guide.

Effects that fall in the red (darker) section of the diagram, that is those which are considered to be major and major/moderate effects by virtue of the more sensitive receptors and the greater magnitude of change, are generally considered to be the **significant visual effects**. Those effects falling outside the area of major, or major moderate significance are considered to be **less than significant**.

Figure A6: Assessment of Visual Effects and Overall Significance



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