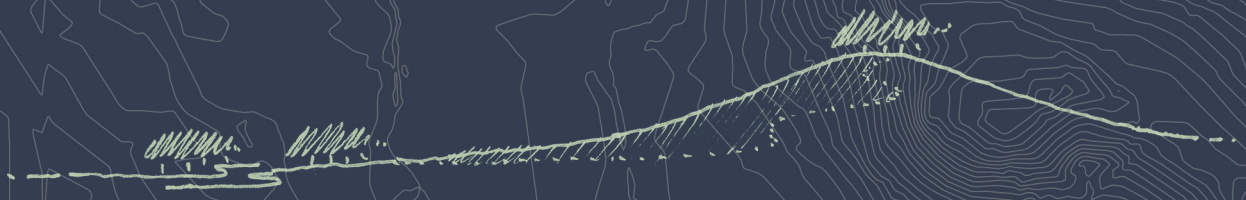


CAMBRIDGE SOUTH

Utilities Appraisal

Jesus College Cambridge

St John's College University of Cambridge

Cambridgeshire County Council

Buro Happold

April 2021

BURO HAPPOLD

Design Note

Project	CBC Vision
Subject	Utilities Appraisal
Project no	0049081
Date	19 April 2021

1 Executive Summary

This report reviews the key opportunities and constraints with respect to utilities and drainage for Cambridge South. The study has been conducted after a review of relevant local planning policy and documentation, and a utility asset search which was undertaken for the site. A demand assessment has been undertaken based on the current masterplan proposals to provide a baseline for the site in a business as usual scenario. It is envisaged that this assessment would form the basis of discussions with utility providers as the masterplan proposals develop.

A review of the utilities for the site have identified the need for new development in Cambridge to include a water resource strategy which effectively manages surface water, foul water and potable water. The extent and mix of uses proposed for the site would allow these challenges to be effectively tackled through a coordinated approach.

With respect to energy, an integrated Campus approach would allow for the realisation of an approach which several disparate or uncoordinated sites of a similar mix and density would not be able to achieve. The landowners are committed to positively contributing to the net carbon zero targets of the LPA, and ensuring a sustainable level of energy use within the development. A number of potential energy options have been reviewed which would maximize on the scale and mix of development proposed for the site. Providing power to the site is likely to require offsite reinforcement – the development programme & phasing allows for coordination with the relevant statutory utility providers, to ensure the development is not constrained by lack of capacity.

2 Introduction

2.1 Purpose

The purpose of this report is to is to set out the key utilities constraints associated with the development proposals for Cambridge South. The work undertaken as part of this Utilities Appraisal has informed the emerging masterplan for Cambridge South developed by Allies and Morrison.

The report is prepared on behalf of four major landowners (Jesus College, St John's College, Cambridgeshire County Council and a private family trust) (the landowners) who have substantial landholdings to the south and south-west of Cambridge Biomedical Campus (CBC). These landowners have come together to propose how the future needs of CBC could be met through a sustainable urban expansion on their land.

The report supports a series of complementary reports submitted to the Greater Cambridge Planning Service (GCPS) to inform the preparation of the Greater Cambridge Local Plan.

2.2 The Cambridge South Study Area and Proposals

The Cambridge South land comprises a large study area to the immediate south of Trumpington and CBC, divided by linear development along Cambridge Road, bordered to the west by the M11 and to the east by Babraham Road. To the south, the study area is enclosed by the Cam River corridor, the village of Great Shelford, and by land which rises towards the Gog Magog Hills. The extent of the study area is shown in Figure 1, but as explained in the Masterplan Report, development is only proposed on two smaller parcels of land adjoining the southern boundary of CBC and the Addenbrooke's Road.

Whilst the draft Development Brief is at an early stage, it is envisaged that development at Cambridge South could deliver approximately 5,000 new homes, together with approximately 4,800,000 sq ft of clinical and research floorspace (with supporting offices and logistics), education, retail, leisure, hotel and conference facilities. These uses would be provided across two main development zones at Cambridge South. Continued joint working between CBC and the landowners will progress the Development Brief, and it will be shaped by engagement with affected communities and with the Greater Cambridge planning authorities.

2.3 Matters covered in this report

This report provides a comprehensive, but high-level assessment of the existing capacities and general provision for all key utilities within this area. The report also outlines proposals for how utilities could then be enhanced to support the development envisaged.

Utilities assessed are:

- Water (potable)
- Drainage (foul water and surface water)
- Electricity
- Gas
- Telecommunications

3 Potable Water

3.1 Existing Infrastructure

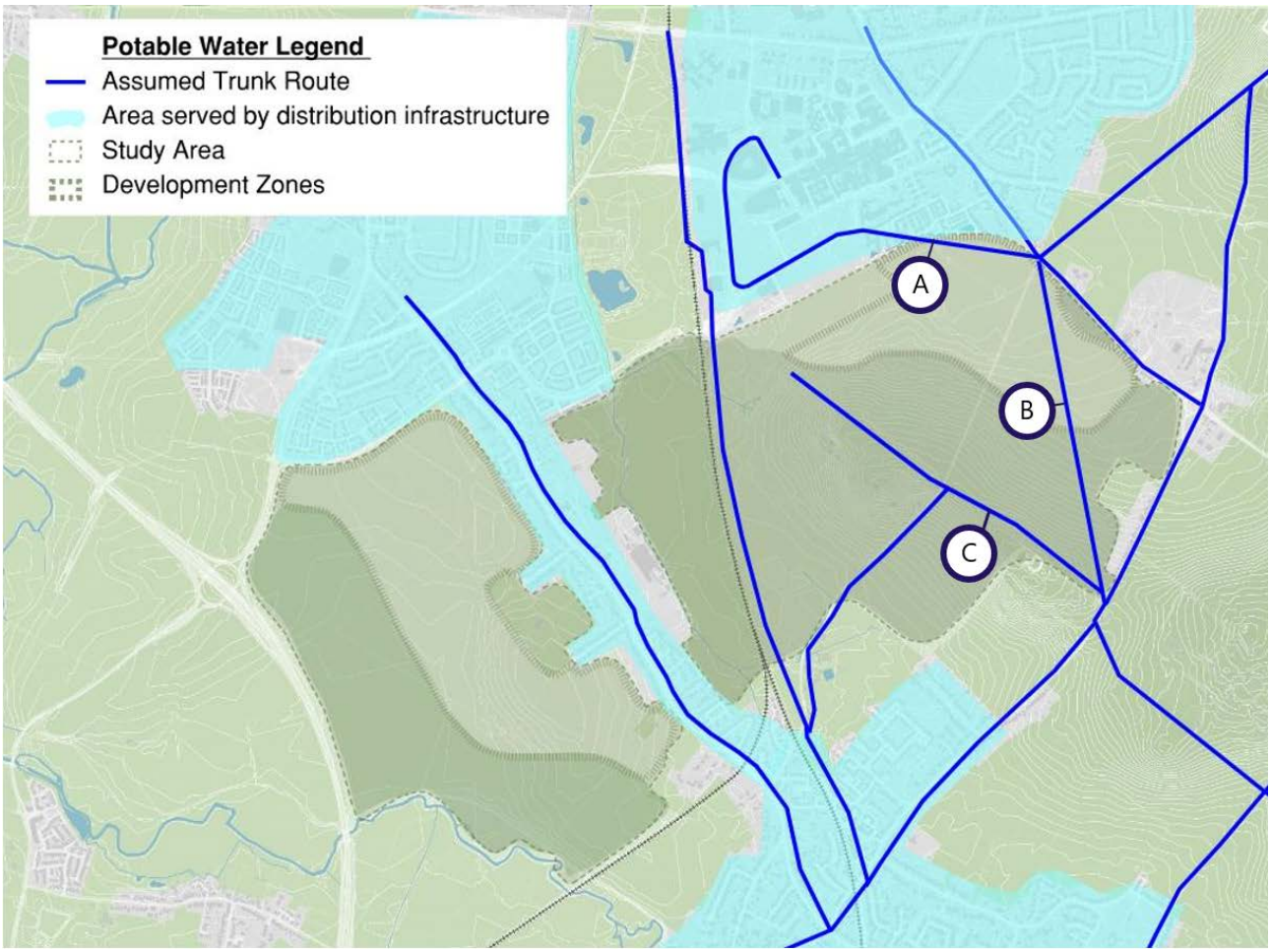


Figure 1 Cambridge Water Asset search result – showing 1 No. 24in main (A) & 1 No. 18in main crossing the site (B) (boundary shown indicatively in red). Additional service connection has also been identified (C) between Nine Wells & Granham's Road.

As shown in Figure 1, the majority of the existing potable water infrastructure around the site is within the public highway. and serves existing residential development. There are two primary potable water mains which cross the proposed development site and one local service connection. If the water mains remain in place through the redevelopment of the site, an easement will need to be provided around them within which no buildings can be constructed. Alignment of roads or landscaping with these assets would be suitable methods of preserving these easements. Alternatively, the assets could be diverted around or within the site, to maintain the easements within the constraints of the proposed developments. The site is large enough to accommodate either option.

On the east of the site the presence of the distribution and transmission pipelines provides a range of potential connection locations, if capacity is available at these points. On the west of the site, along Cambridge Road, the network size of the connection appears to be primarily distribution, and hence may not be as suitable for connection into this part of the development. Some reinforcement may be required to the networks around Great Shelford to provide a connection. Consultation with Cambridge Water will be required to identify a suitable point of connection.

3.2 Security of Supply

The majority of water in the Cambridge region is abstracted from ground water sources. In 2013 the Environment Agency (EA) set Cambridge's water stress as moderate. No further assessment of water stress has been completed by the EA since this time.

The Greater Cambridge Local Plan – Integrated Water Management Study for the wider area outlines the pressure on existing water sources to meet current and anticipated growth in demand. Current rates of abstraction from the chalk aquifer in Cambridge have been linked to reduction in local chalk stream baseflows, which results in environmental damage. The report outlines the need for new water demands to be managed through reduced demand and water recycling techniques such as through rainwater harvesting and grey water recycling, both of which can be readily accommodated on this site due to its size and blend of uses. Reduced demand can be achieved in a residential environment using water efficient fixtures and fittings, which require little to no behavioural changes from the users.

Case Study Eddington Campus Rainwater Recycling System – In a new development in Eddington the University of Cambridge partnered with Cambridge water to introduce a rainwater recycling system. Rainwater collected on site is directed to lakes where it is stored before re-use in the adjacent buildings. The effect is that the potable water consumption for the residential development has been decreased to 80l/p/d. The scale of the development allowed the efficiencies which make this type of scheme viable.

The promotion of major sites through the Local Plan will allow Greater Cambridge to plan for long term solutions for new capacity. Large scale development for up to 5,000 homes offers the opportunity for growth to be planned for in a managed way. The scale of the proposed development and the mix of uses provides a greater number of opportunities for water recycling techniques similar to those employed at Eddington.

3.3 Anticipated Demand

The anticipated demand for the site has been calculated as 4700m^3/day in accordance with the density calculations prepared by A&M. This figure includes a 10% contingency to allow for the uncertainty in at this stage of the project. The potable water consumption per use is shown in Figure 2, and the benchmarks used in the calculations are shown in Table 1. This demand assessment has been undertaken as a baseline assessment, with no reduction associated with the opportunities identified below.

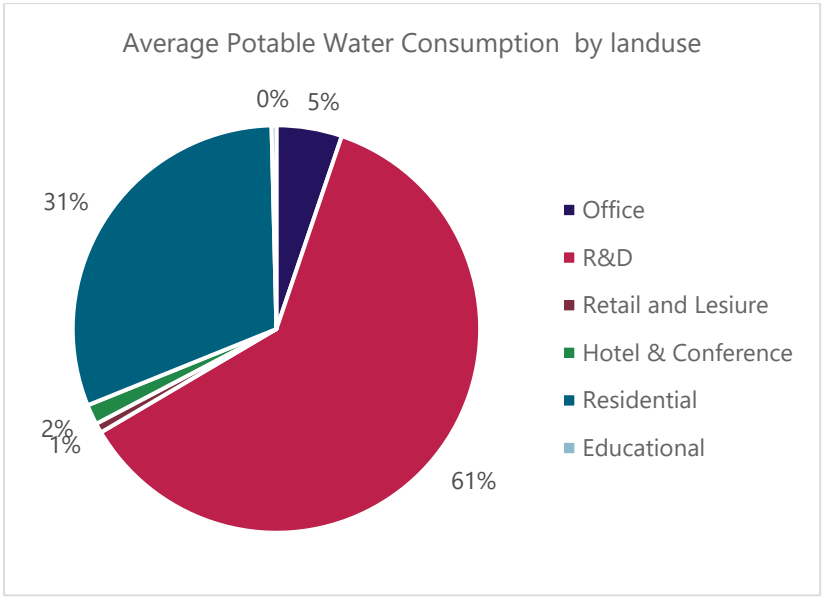


Figure 2 Potable water consumption by land use

Table 1 Benchmarks by use class

Use	Benchmark	Units	Source
Office	45	*l/per/day*	*BSRIA 5th Edition - Office*
R&D	3.2	*m3/m2/yr*	*BuroHappold previous project*
Retail and Leisure	40	*l/per/day*	*BuroHappold previous project*
Hotel & Conference	135	*l/per/day*	*BSRIA 5th Edition - 2* Hotels*
Residential	120	*l/per/day*	*BSRIA 5th Edition - Homes*
Educational	20	*l/per/day*	*BSRIA 5th Edition - Secondary Schools/ Colleges*

3.4 Opportunities and Considerations Summary

Opportunities:

- The size of the site provides an opportunity for large scale water recycling to be implemented to reduce the water consumption per person and mitigate the impact on Cambridge water stress. The development at Eddington is an example of how abstracted potable water demand can be dramatically reduced through development at scale.
- In addition, building level solutions for water demand management (such as efficient fixtures) could further reduce water consumption on the site. The landowners are committed to encouraging grey / green water recycling as part of any future proposals, to go beyond the Building Regulations standard requirement of 125 l/p/d, with aspirations to meet 110 l/p/d. A high standard of water efficiency measures would be employed across all future proposals at the site.

Considerations:

- Existing Cambridge Water primary transmission main within the site. If the water mains remain in place through the redevelopment of the site, an easement will need to be provided around them within which no buildings can be constructed. Alignment of roads or landscaping with these assets would be suitable methods of preserving these easements. Alternatively, the assets could be diverted around or within the site to maintain the easements within the constraints of the proposed developments. The site is large enough to accommodate either option.
- The water stress which has been identified in Cambridge is a constraint on growth within the wider Cambridge region generally. The size and mix of uses onsite will allow for the deployment of the water demand and recycling measures necessary to allow for growth with a reduced impact on available resources.

4 Foul Water Drainage

4.1 Existing Infrastructure

4.1.1 Local distribution Infrastructure

The results of the asset search are shown in Figure 3. Anglian Water owned foul water drainage networks have been identified in proximity to the boundary of the study area. The drainage networks follow the alignment of existing roads. The areas around the eastern parcel discharge to a low point at the southern end of the site; from here flows are pumped into a rising main which runs adjacent to the rail line in a northerly direction. No Anglian Water transmission mains were identified crossing the site.

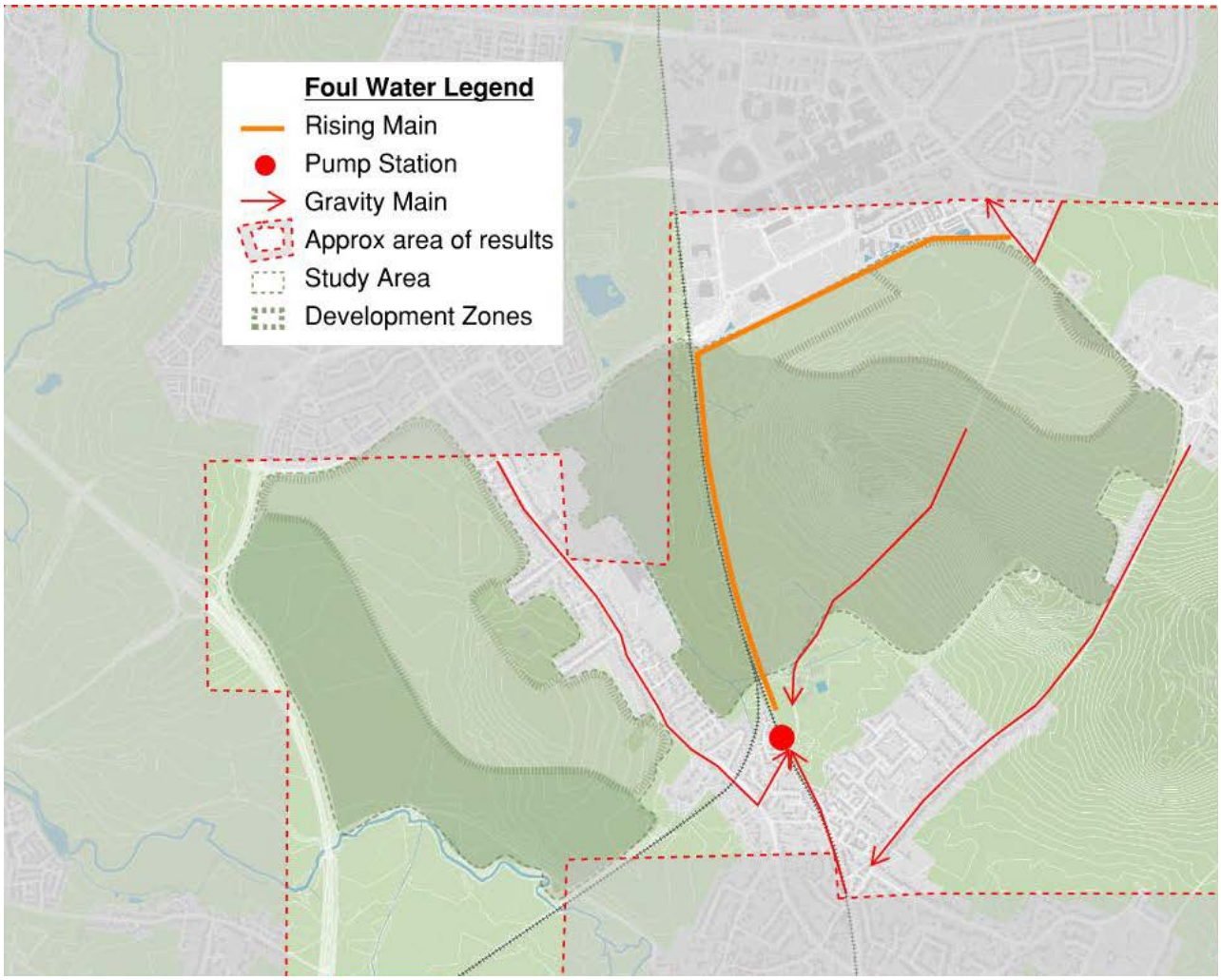


Figure 3 Summary of sewage networks identified by asset owners through Buro Happold Desk Study.

4.1.2 Primary Infrastructure

The wider Cambridge Local Plan area is served by a number of waste water treatment plants shown in Figure 4 below. CBC and the expansion land are within the catchment of Cambridge Waste Water Treatment Works, located to the north east of Cambridge, highlighted in green with a dashed orange boundary. This plant is planned for upgrade and relocation by Anglian Water, to a neighbouring site to the north. The project is still at consultation phase, with a Development Consent Order planned for submission in 2022/2023. Relocation of the Cambridge Waste Water Treatment Works offers opportunities to expand capacity to support growth at the proposed development site.

Early consultation with Anglian Water will be undertaken to ensure that the planned capacity of the plant can accommodate the flows generated by expansion. Some offsite reinforcement to the existing transmission network is likely to be required to accommodate the discharge from the site, however the lead time for the development allows for consultation and coordination with adjacent works.

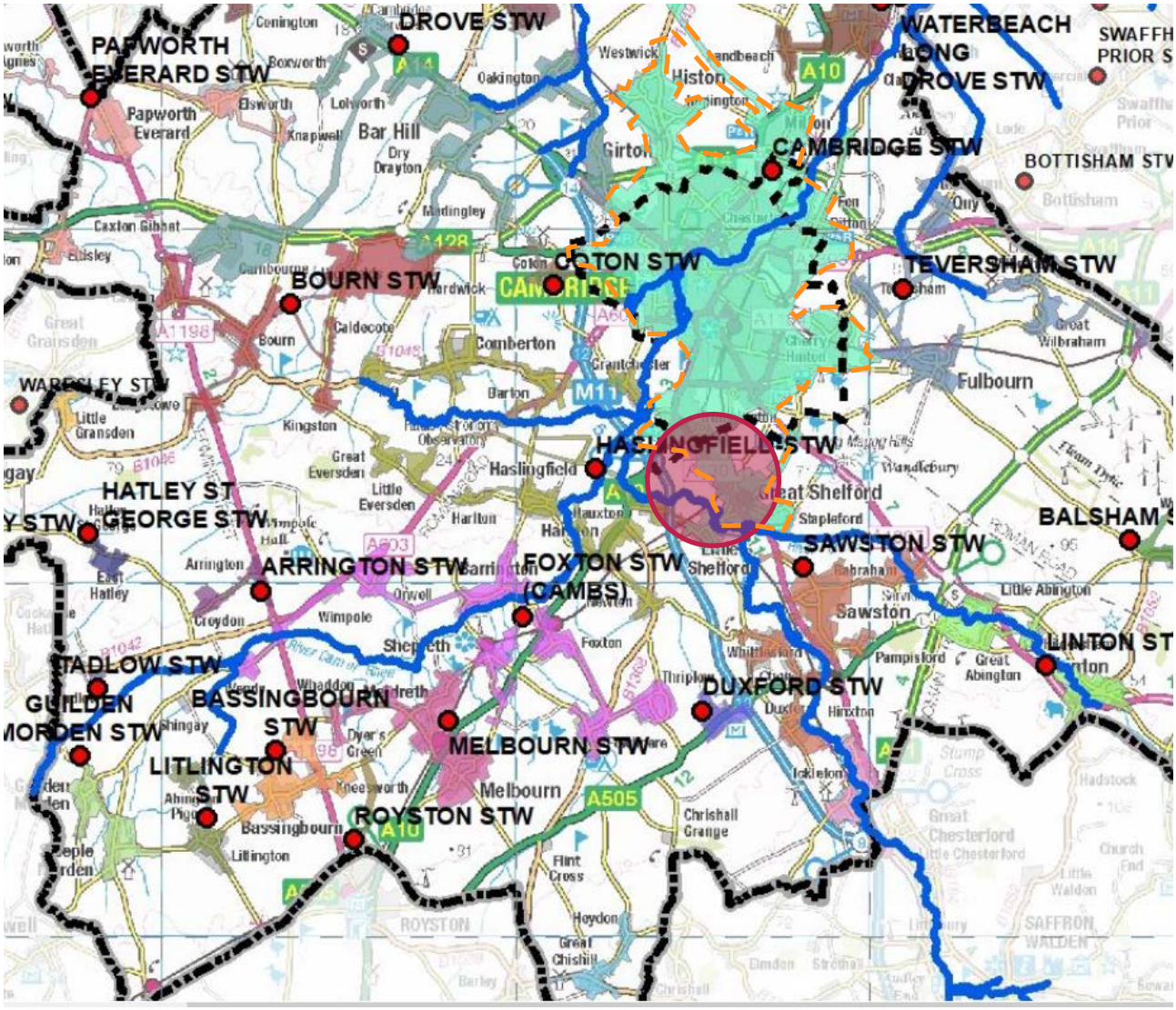


Figure 4 Extract from Greater Cambridge Local Plan, Strategic Spatial Options Assessment – Figure 6 (Greater Cambridge Shared Planning, 2020). Approximate site location shown with red dot.

4.2 Anticipated Discharge

The foul water discharge for the site has been calculated on the assumption that 85% of the potable water consumed will arrive in the foul water network. As such an average foul water discharge of 3995m^3/day can be anticipated.

4.3 Opportunities and Considerations Summary

Considerations:

- The site location on the edge of the Cambridge Waste Water Treatment Works catchment means that an upgrade of the local network capacity may be required to meet the discharge requirements of the site. A better understanding of this constraint will be provided through pre-development enquiries with Anglian Water as the masterplan develops.

Opportunities:

- Pending more detailed discharge estimations, it may be cost effective for the landowners to engage with a package treatment supplier to construct and operate a facility on site. Low odour and unobtrusive package plants available could reduce the visual and environmental impact of the plant. Funding arrangements are negotiable such that tariffs generated by the facilities could form an income stream for the developer, or be offset against

the cost of the treatment plant. Dependent on the method of treatment, the discharged water could also be recycled on site for non-potable uses, which would further reduce the potable demand.

- Network reinforcement is the responsibility of the sewerage undertaker. As increased flows will occur over a long period, it should be possible for Anglian Water to plan for upgrades to suit the development timetable. Funding for upgrades is generated through the AMP process and through infrastructure connection charges.
- An integrated water management plan, that recognises the needs to effectively manage consumption to minimise the impact on potable resources, will also have the benefit of limiting foul discharge. Large sites brought forward under a single delivery vehicle afford the opportunity to provide an integrated approach much more effectively than across multiple smaller sites.

-

5 Surface Water Drainage

5.1 Existing Infrastructure

5.1.1 Local Infrastructure

The asset search for the site revealed a minimal amount of Anglian Water surface water drainage infrastructure in the vicinity of the development, apart from one connection into Hobson's Brook. It is likely that the highway drainage infrastructure is owned and operated by the local highway authority and hence would not appear on asset search results. It is not clear how the existing residential developments which border the proposed site manage their surface water drainage.

The absence of a conventional surface water drainage network in proximity of the site should not pose a significant constraint on development. The LPA recognises that large developments have the scale to enable the installation of highly effective onsite surface water management systems. This site would be such, a location and the landowners are committed to ensuring that the neighbourhood would be designed and managed in a way that would contain all surface water drainage on site and be used to support improved biodiversity.

5.1.2 Local Water Courses

The west site is bounded by the River Cam, which flows northwards towards Cambridge and is designated as a County Wildlife Site. There are no other main rivers or watercourses within the Site. Hobson's Brook, a chalk stream, also flows northwards between the west and east sites towards Hobson's Park and Cambridge. Both the east and west site are designated as within Flood Risk Zone 3. However, detailed flood risk modelling undertaken by Peter Brett Associates in 2016 identified the risk as related to overland flow of surface water and not fluvial flood risk. A more detailed review is provided as part of the Environmental Appraisal.

The local water courses will be considered through the development of the surface water & rainwater harvesting strategy for the site, to ensure that the regime of the rivers is not altered to the extent that additional flooding occurs as a result of the development, or that the catchment of the river is altered resulting in environmentally damaging low flows in drought conditions.

5.2 Water Quality – Source Protection Zones

The site is in proximity to, but not covered by, Source Protection Zones as designated by the EA. Source Protection Zones are areas which are designated as requiring specific water quality requirements when discharging to ground. This means that whilst pollutant generation and migration will need to be handled on site, there are no specific additional requirements placed on water infiltrated to ground as part of the surface water strategy.

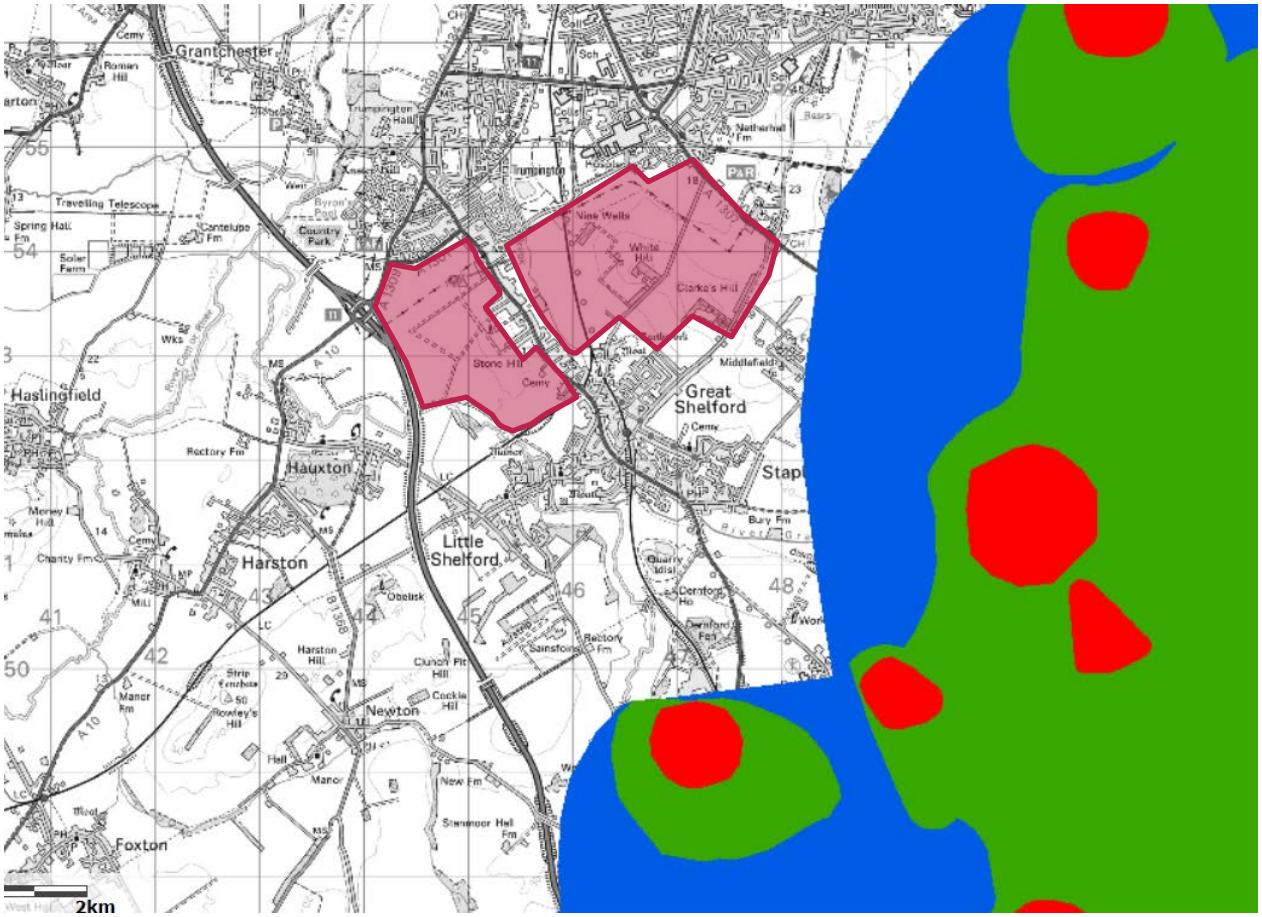
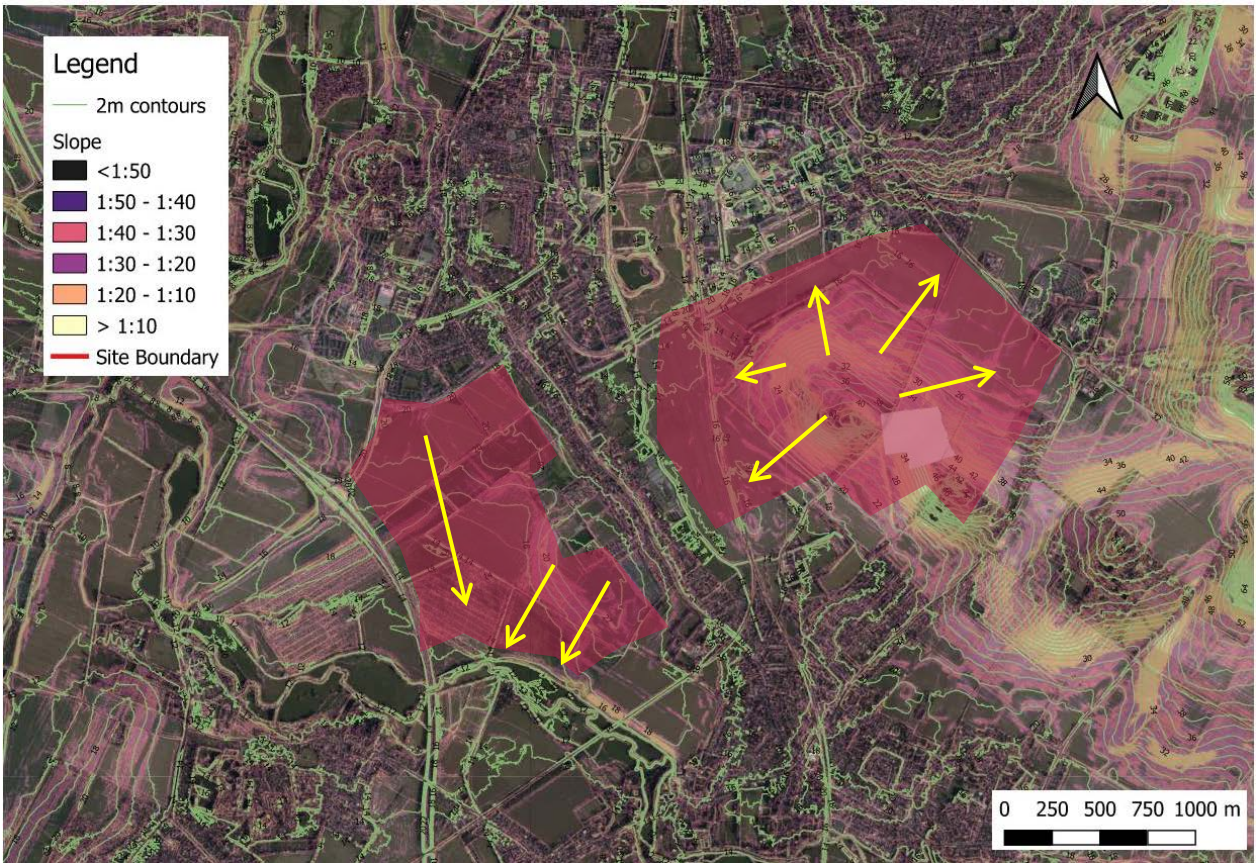


Figure 5 Approximate site location shown adjacent to the source protect zones as identified using the online Defra mapping tool (DEFRA, 2021)

5.3 Site Topography

The topography of the site will influence the surface water management for the development. In the western parcel there is a natural slope down to the River Cam. The eastern parcel topography is typified by a raised area in the centre of the site which falls away to the boundary of the study area. Within the masterplan space has been allocated for the integration of blue-green infrastructure at locations to capture and manage the surface water flows generated by this runoff.



5.4 Opportunities and Considerations Summary

Considerations:

- The flow regime of the existing water courses on and near the site will need to be considered within the context of the proposed development, to prevent environmental damage or flood risk.

Opportunity:

- Surface water could be managed through infiltration of excess surface water to ground (subject to confirmation of infiltration capacity of soil).
- Potential to provide betterment of water quality discharge of the site through the introduction of SuDS features.
- Commitment to reduce discharge rates to below existing greenfield rates and reduce downstream flood risk.

6 Electrical Power

6.1 Existing Infrastructure

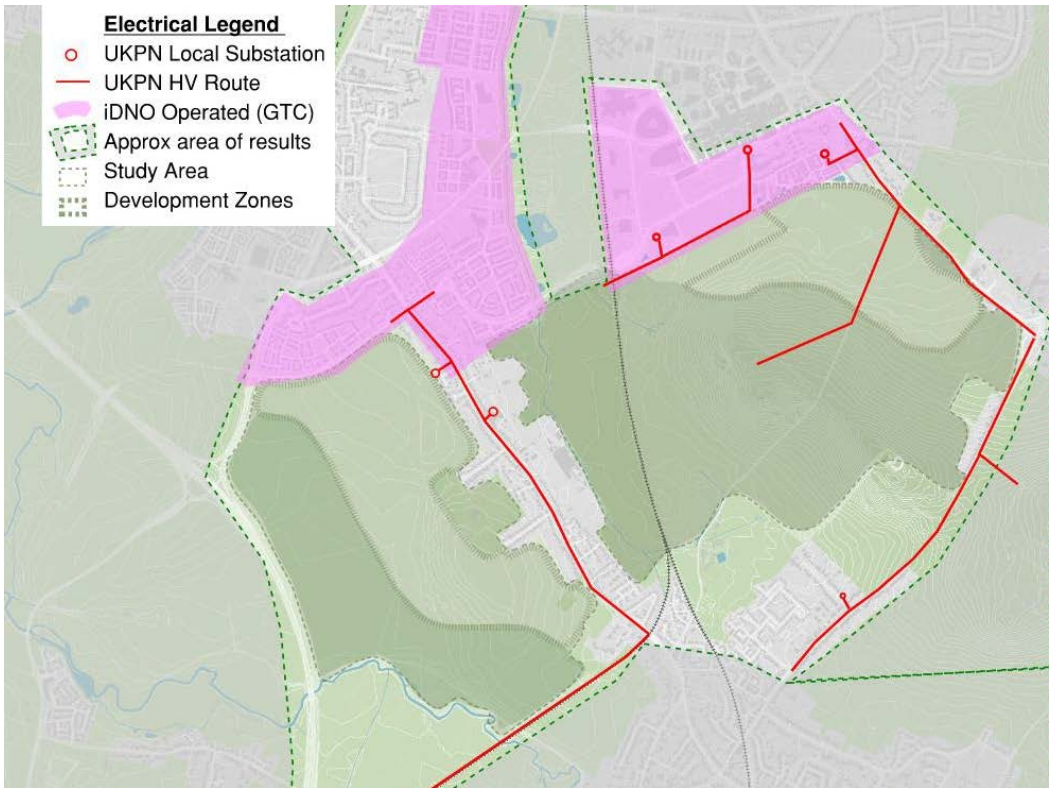


Figure 5 Existing HV networks identified by asset owners through desk study.

The asset study revealed the presence of electrical power infrastructure in proximity to the proposed site. The relevant HV cable infrastructure is shown in Figure 7. In general, the networks are within the highway network which border and dissect the site, however in the eastern parcel there is one below ground HV cable which supplies the cluster of houses around Mills Farm. It is anticipated this would not constrain development in this section of the site, as the cable could be diverted to coordinate with any proposed plots in this area.

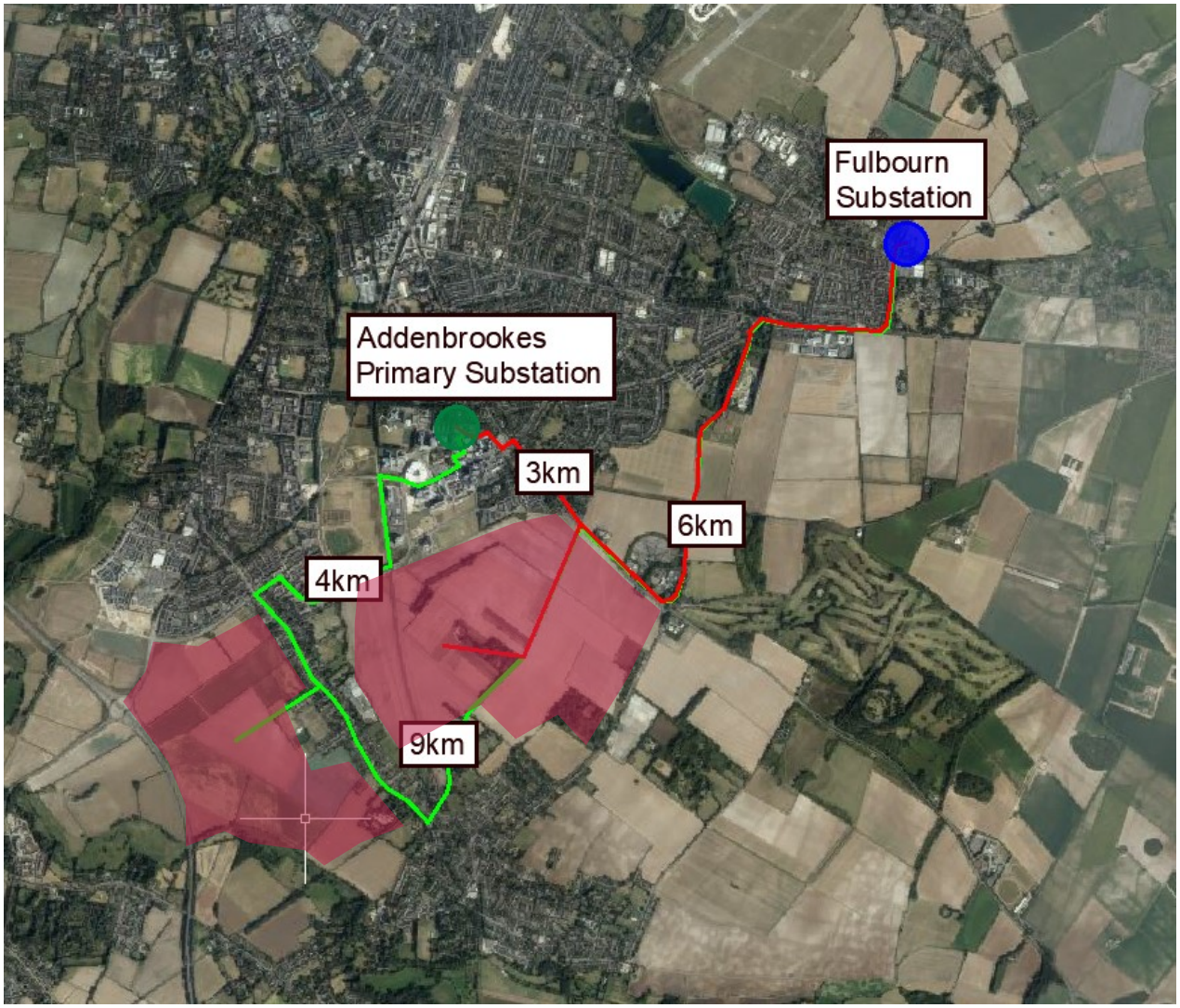


Figure 6 Proximity of closest adjacent primary substations. Approximate location of the study area shaded red.

There are two primary substations in proximity to the proposed site – Addenbrooke's and Fulbourn Substations, shown in Figure 8. The approximate distances between the substations and the proposed sites have also been shown to give an indication of the extent of reinforcement which would be required to provide connection to either of these two locations.

6.2 Anticipated Demand

6.2.1 Power demands

The anticipated demand for the site has been calculated as 47MVA excluding cooling and heating, using the A&M prepared density calculations. This figure includes a 10% contingency to allow for the uncertainty in at this stage of the project. A power factor of 0.9 has been assumed. The electrical power consumption by use is shown in Figure 9, and the benchmarks & diversity factors used in the calculations are shown in Table 2. This demand assessment has been undertaken as a baseline assessment, with no reduction associated with the opportunities identified below.

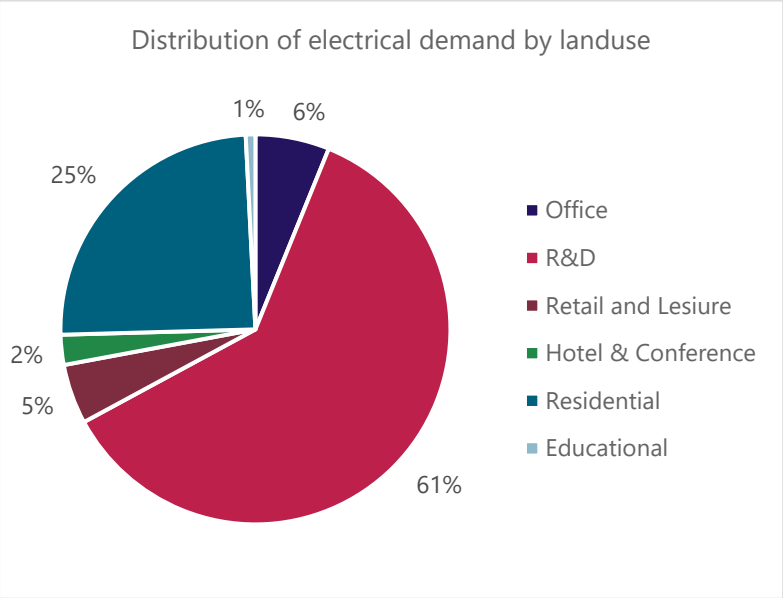


Figure 7 Electrical power distribution across land use

Table 2 Power benchmark by land use

Use	Benchmark	Units	Source	Diversity Factor
Office	50	W/m2	*Office - Siemens planning of electric power distribution*	*0.8*
R&D	112.5	W/m2	*From BH Benchmarking study from existing buildings. Assumes 50% wet and 50% dry lab*	*0.7*
Retail and Leisure	160	W/m2	*Shops, Table 20, BSRIA 5th Edition*	*0.8*
Hotel & Conference	2100	W/room	*Hotels, Table 19, BSRIA 5th Edition*	*0.8*
Residential	1900	W/unit	*UKPN Benchmarks*	*Not applied*
Educational	35	W/m2	*BSRIA 5th Edition - Schools, Naturally Ventilated*	*0.8*

6.2.2 Cooling demands

The total electrical demand associated with cooling is estimated as 20MVA, based on an efficiency of 300% with a 10% contingency applied. The benchmarks used to estimate this figure are shown in Table 3 & the distribution across land uses is shown in Figure 10. It is assumed that Residential and Educational will not require cooling at this stage, subject to overheating analysis in the design stage.

Table 3 Cooling benchmarks by land use

Use	Benchmark	Units	Source	Diversity Factor
Office	87	W/m2	BSRIA 5th Edition - Offices	0.8
R&D	150	W/m2	Buro Happold previous project	0.7
Retail and Leisure	140	W/m2	BSRIA 5th Edition - Retail	0.8
Hotel & Conference	150	W/m2	BSRIA 5th Edition - Hotel	0.8

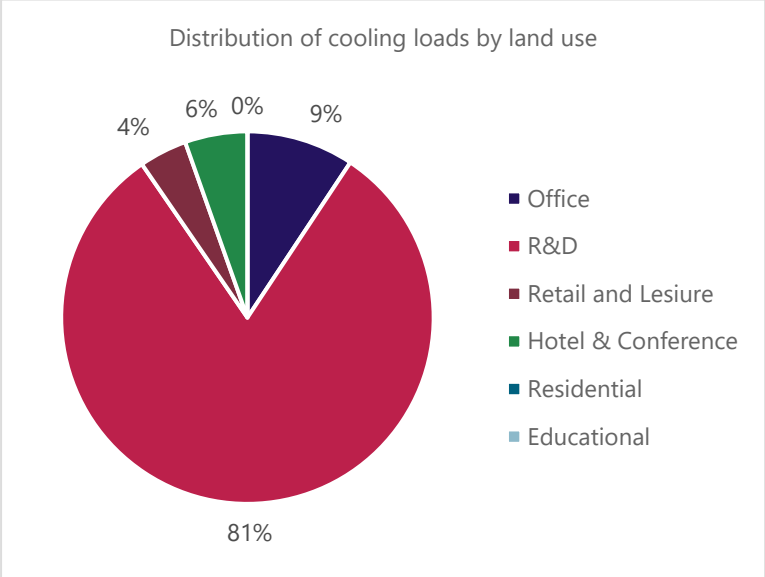


Figure 8 Distribution of power demands associated with cooling by land use.

6.2.3 Heating demands

The total heating demand has been estimated as 58MWth for the site, including a 10% contingency factor. The benchmarks used to calculate this are shown in Table 4 and the distribution across land uses is shown in Figure 11. This demand assessment has been undertaken as a baseline assessment, with no reduction associated with the opportunities identified below.

The absence of any obvious secondary heat sources would limit the network heating to air, ground or water (rivers), which would generate additional electrical demand. Depending on the final heating strategy this may be in the region of 25 MVA additional electrical capacity. But this would largely not be coincident with cooling demand.

Table 4 Benchmarks used for the calculation of the total heating demand for the site

Use	Benchmark	Units	Source	Diversity Factor
Office	70	W/m2	*BSRIA 5th Edition - Offices*	0.8
R&D	110	W/m2	*Previous BH Experience*	0.8
Retail and Leisure	100	W/m2	*BSRIA 5th Edition - Retail*	0.8
Hotel & Conference	60	W/m2	*BSRIA 5th Edition - Residential*	0.8
Residential	60	W/m2	*BSRIA 5th Edition - Residential*	0.7
Educational	87	W/m2	*BSRIA 5th Edition - Educational*	0.7

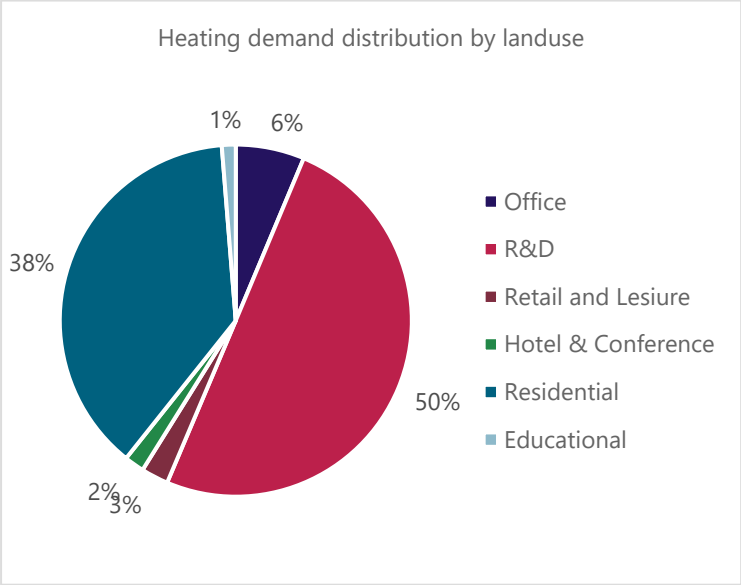


Figure 9 Distribution of heating demands by land use type

6.2.4 Total power demands

The total power demand may be expected to be in the region of 80 MVA for the full build out of the development. This will be subject to review of detailed strategies, technology selections and diversities at the design stage.

6.3 Supply

The electrical demand generated by the site would warrant new electrical infrastructure on site, potentially including a new Primary Substation. Further investigation will be required to ascertain capacity from either the Fulbourn or Addenbrooke's Substation.

The expansion of the hospital site to the north will drive an increase in demand for power locally. The proposed site for development's location provides the opportunity to coordinate with these upgrades. The development would seek early engagement with UKPN through their "DER Surgeries" to understand opportunities for delivery of electricity to the site. Delivery of new homes through the comprehensive development of a single site, planned for through the emerging Local Plan, creates an opportunity for the landowners to work with Greater Cambridge Shared Planning to secure a long-term solution. In the event that a more strategic upgrade solution is required, it is anticipated that this would come forward in line with the Local Energy East Strategy, a solution being adopted elsewhere in the south East by other local authorities and UKPN to support local plan requirements.

As the development progresses, the landowners would seek to coordinate a phased increase in supply through consultation with UKPN to ensure that the supply can be met. As improvements within the local network take place, CBC will seek to reserve the required power to ensure the deliverability of the commercial component of the scheme.

6.4 Energy options

We recognise the net zero ambitions of Cambridge City Council and the development will strive to align with these, aiming to maximise building efficiencies and integrate renewable energy into the development. The options considered below would allow for a reduction in the overall energy demand outlined within Section 6.2.4.

Opportunities include:

- Energy efficiency / Demand management
    - Dwellings adopting passive design techniques and high efficiency buildings would reduce the total load and therefore potential offsite reinforcement (and maximise the contributions from on-site renewable generation)

    - Smart systems including
        - Demand side response with thermal storage and smart heating to manage peak heat demands across the development
        - For electrical vehicles, smart grid solutions to reduce network capacity could also be considered. (e.g. UKPN standard for is a diversity of 0.8 for EV but can get to 0.2 with smart charging offers). There is potential for charging solutions to be outsourced and managed by a third party.
- Renewables
    - Integrating solar generation into both residential and commercial buildings as well as green space
    - Heat pumps to provide high efficiency, low carbon heat from secondary heat sources (including the air and the ground)
- Heating
    - Opportunity to provide integrated low carbon heating solution from the outset, either at district level (e.g. localised or shared infrastructure with CBC). Further reviews at the design stage will test viability versus individual building level to suit ultimate building typology and distribution.
    - The density of development will determine the most appropriate solution for heating infrastructure. An ambient loop could form an efficient and cost-effective solution. These operate at a lower temperature than a traditional district heating network. The implementation of an ambient loop would require two levels of heat exchange – one at the site level (to regulate the loop temperature) and then one at each plot to increase the temperature as required. Due to the mix of facilities and potential simultaneous heating and cooling there is also the potential for sharing waste heat / cooling back into the network and maximise overall system efficiencies.

6.5 Opportunities and Considerations Summary

Considerations:

- Reinforcement to grid expected to be required to in order to enable the development. The lead time of the development allows for opportunities for early engagement with UKPN.

Opportunities:

- Renewables integration including Solar PV / thermal generation and heat pumps.
- Electrical demands could be actively managed on the site through smart energy systems.
- Sitewide heat network with energy sharing between buildings.
- Integrated energy supply with CBC development.

7 Gas

7.1 Existing Infrastructure

7.1.1 Local distribution Infrastructure

The results of the desk-based asset search are shown in Figure 12. Generally, the majority of gas infrastructure is medium and low-pressure connections to residential areas around the proposed site. Whilst there are no regional high-pressure lines on the site, it is crossed by a Local High Pressure (LHP) route (sub parcel 57245861) & Medium Pressure route. No excavation, planting of substantial shrubs and trees, or construction of buildings is permitted over this gas infrastructure. In addition, a medium pressure route crosses the western site. There may be the opportunity to divert this main if it forms a significant constraint on the development. The scale of the site and the flexibility of the proposed development would allow this.

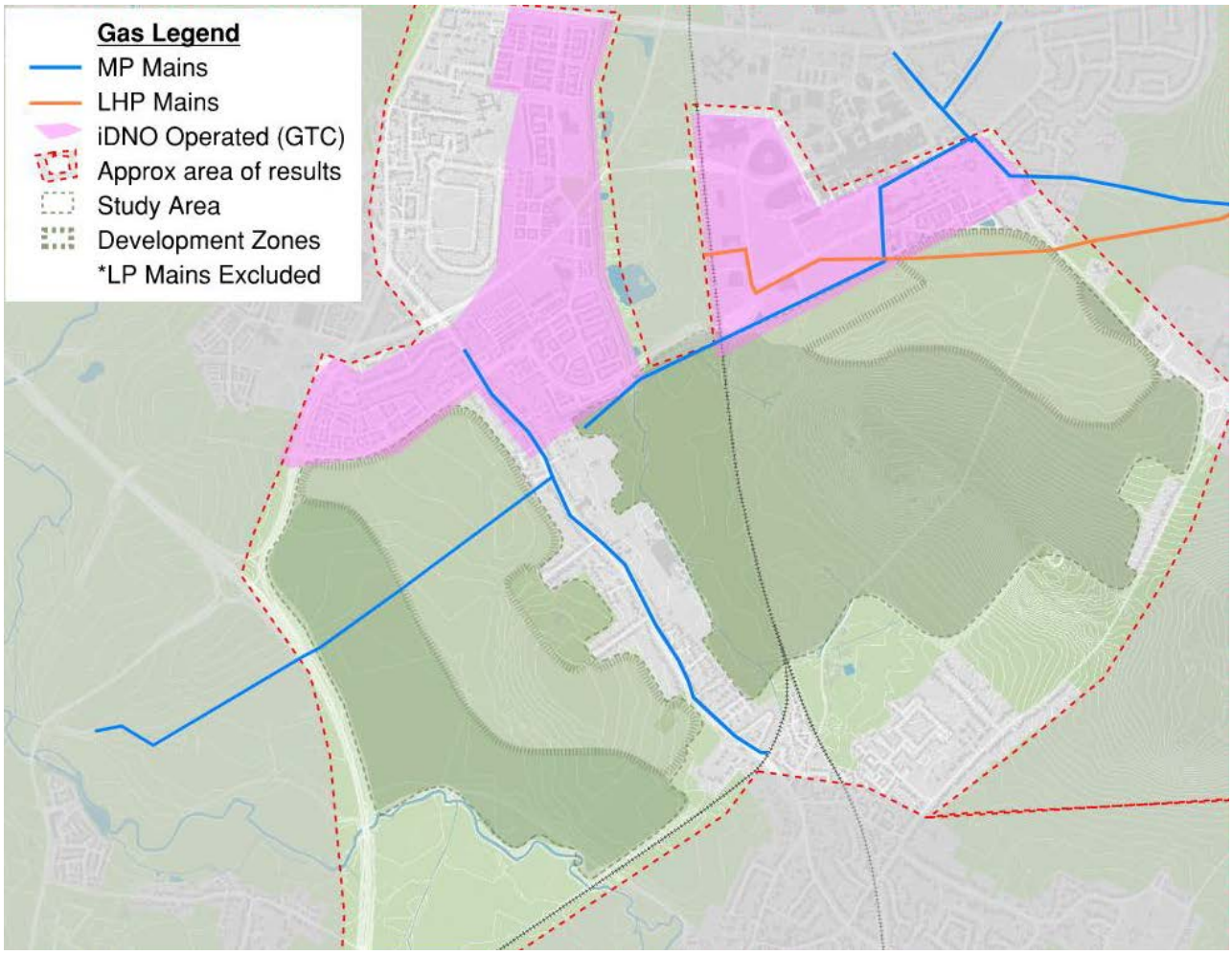


Figure 10 Gas infrastructure in proximity to the site

7.2 Anticipated Demand

The decarbonisation of the electrical network is reducing the use of gas for heating. Whilst the development may still require some form of connection (for lab uses) it is unlikely that this will constitute a large proportion of its overall demand.

7.3 Opportunities and Considerations Summary

Considerations:

- The Medium and High-Pressure mains on the site would need to be diverted to the northern edge of the site, or an easement accommodated through the design. The scale of the site is sufficient to accommodate either option.

Opportunities:

- Through the development of the masterplan a full review of the available technologies should be undertaken (alongside associated carbon emissions). The site represents an opportunity for zero fossil fuel combustion on site (apart from labs where it may still be required)

8 Telecommunications

8.1 Existing Infrastructure

8.1.1 Local distribution Infrastructure

The asset information received from the search has identified local distribution networks to the site. The ownership of these networks is highlighted in Figure 13 below. The key finding of this asset search is that no telecommunications infrastructure has been found to be crossing the site, therefore there will be no impact on development.

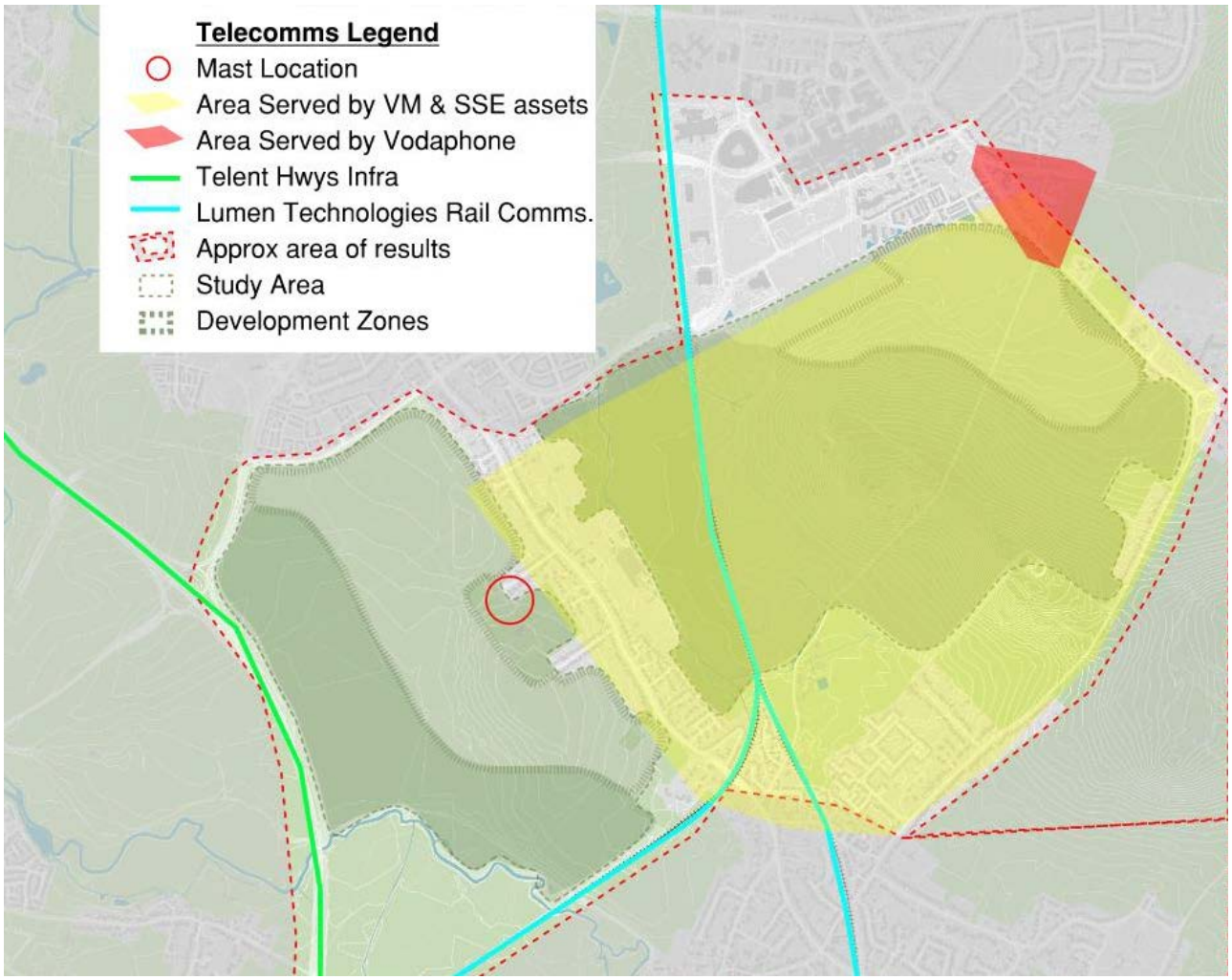


Figure 11 Existing local telecommunication infrastructure on the site.

8.1.2 Primary Infrastructure

An initial assessment of the size and type of development proposed indicates that the installation of a localised Points of Presence (PoPs), collocated with a microdata centre, is likely to be appropriate and beneficial to the scheme. Allowing for a site-specific PoP would reduce the need for multiple lengthy cable runs back to the local exchange (shown in Figure 14)

and can provide a centralised location for the site. This would minimise offsite works and offsite disruption, whilst also providing a high level of connectivity to future business occupiers and residents on site.

This would require fibre connectivity from a local exchange point (shown in blue, Figure 14) allowing the PoPs to have connectivity to external networks. The PoPs would then be the distribution point for fibre optic connections for the site. This option would bring a higher degree of control to the developer from first build out and could allow points of presence to be leased or adopted by a third-party service provider. This open access or sharing of infrastructure can open up the market for more potential providers rather than relying on a single fibre optic wholesaler like Openreach and potentially can give residents and businesses more commercial ISP options.

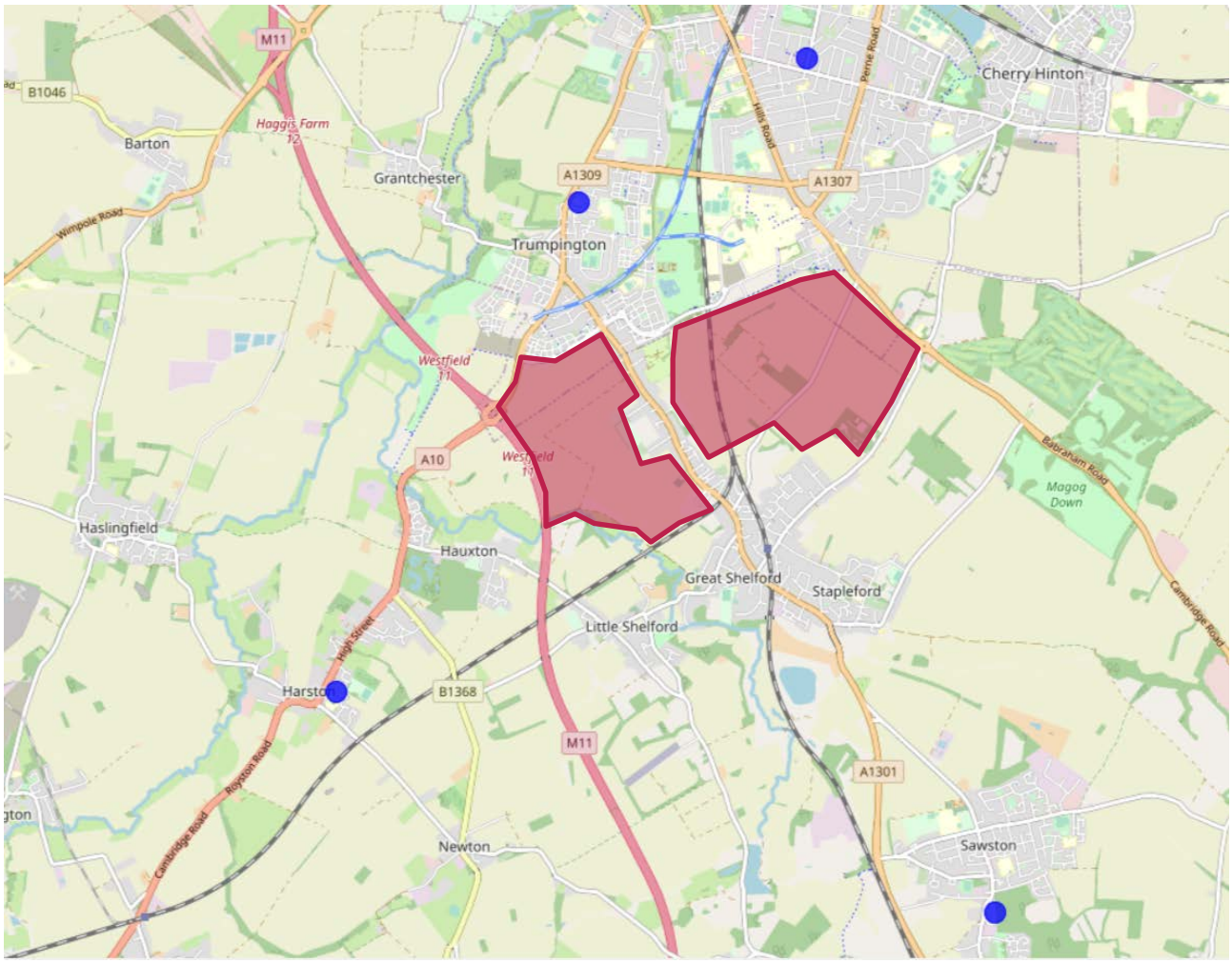


Figure 12 Location of Telecommunication Exchanges (blue circles) in proximity to the site. (Think Broadband, 2021)

8.2 Opportunities and Considerations Summary

Opportunities:

- The ability to effectively plan, phase and deliver the scheme at scale under a single vision will allow for properly planned telecommunications infrastructure which can effectively integrate and enhance the urban design aspirations of the development. This gives the opportunity to minimise footprint by providing consolidated duct banks & cellular masts. From an asset ownership perspective, early engagement with operators would allow integration of assets to reduce land take.
- The sites' size and location provide the opportunity for neutral host network; a shared network provided on site for CCTV, access control, day to day management of the site. This type of network provides benefits for both future commercial occupiers and tenants, with the ability to provide onsite Wi-Fi, or a bespoke "smart overlay" onto the scheme.

Considerations:

- The site's location on the fringe of Cambridge could require some enhancement of the existing cellular network to deal with the proposed connections. Effective management of this process would allow for earlier realisation of 5G as per the opportunity point outlined previously.
- In terms of physical infrastructure, telecommunications asset owners tend to work geographically. There may be some limitation to the site as a result of this, however the number of infrastructures operators in the area should provide adequate choice in this respect.