

Intended for
Wates Developments Ltd

Document type
Report

Date
January 2025

LAND WEST OF TURNERS HILL ROAD AND SOUTH OF HUNTSLAND, CRAWLEY DOWN UTILITIES ASSESSMENT

LAND WEST OF TURNERS HILL ROAD AND SOUTH OF HUNTSLAND, CRAWLEY DOWN

Revision **3**
Date **17/01/2025**
Made by **Matthew Harper**
Checked by **Peter Burczyk**
Approved by **Anthony Guay**
Description **Utilities Assessment Report**

Ref 200UnitsSouth_RUK2021N00014-RAM-RP-00115 Land West of Crawley Down Utility Assessment

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Ramboll UK Limited
Twenty3
Brunswick Place

Southampton
SO15 2AQ
United Kingdom

<https://www.ramboll.com/en-gb>

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EXECUTIVE SUMMARY

Ramboll UK Limited ('Ramboll') has been commissioned by Wates Developments Limited ('the Client') to carry out a review of the existing utility services provision to the West of Crawley Down, Crawley, West Sussex and initiate discussions with the local utility providers to service the proposed residential development.

The report summarises a desktop exercise comprising load assessments for the proposed development and record information of existing utility network assets. Budget quotation proposals from the relevant utility supply companies and an outline strategy for how the future development may be served have been included in the report. Please note that only an illustrative masterplan was available at the time of the Utility Assessment. Firm quotations would need to be confirmed in the future for detailed reinforcement/diversion requirements. However, initial enquiries have been made on the basis of a 200 residential unit development based on information provided by the Client.

From the record information received, some utility services might require an easement zone to facilitate the development, depending upon the proposed masterplan layout when confirmed.

The following provides a summary of new services required to serve the proposed development:

- Clean water – New water main plus branch connections required for 200 residential units.
- Power – The initial proposal includes the installation of 2 new substations and new HV cables on the Client's land.
- Assumed no gas will be supplied to this site.

Utility provisions are summarised as follows:

Utility Service	Site Status	Utility Supplier
Clean water	Available	South East Water
Electricity	Available	UKPN
Data/comms	Available	Multiple

Table 1: New Connections

1. INTRODUCTION

1.1 Background

Ramboll UK Ltd (Ramboll) has been appointed by Wates Developments Limited ('the Client') to undertake a utility assessment with respect to the proposed development on the Land West of Crawley Down, Crawley, West Sussex ('the site') for up to 200 residential units.

1.2 Objective and Scope of Works

The aim of this report is to summarise a desktop exercise comprising load assessments for the proposed development and record information of existing utility network assets. Budget quotation proposals from the relevant utility supply companies, and the preparation of an outline strategy for how the future development may be served, will be added in due course when responses to our enquiries have been received from the utility supply companies.

1.3 Limitations and Constraints

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2. THE SITE

- 2.1 The site is located in Crawley Down adjacent to Turners Hill Road (B2028). It is centred on approximate OS Eastings/Northings (E/N): 533798E, 137341N at postcode RH10 4HB (Figure 1).
- 2.2 The site is approximately 20.05 hectares (ha) in size and is currently comprised of a series of agricultural fields. It is not anticipated that the project will involve the demolition of any buildings. Existing woodland runs along the boundary of most of the site. The site is bordered by:
- North: Huntsland (private road);
 - East: Turners Hill Road (B2028), immediate beyond which is the wider residential area of Crawley Down;
 - South: Worth Way, a 7-mile (11 km) footpath and bridleway linking the West Sussex towns of Crawley and East Grinstead via the village of Crawley Down. Most of the route follows the track bed of a disused railway. It is part of the National Cycle Network; and
 - West: Intermittent woodland and series of farms/smallholdings and cottages.
- 2.3 Current access to the site is through Huntsland, a private road off Turners Hill Road. Gatwick Airport is located roughly 6.5 miles north west of the site with the nearest train stations located in Three Bridges, Crawley and East Grinstead, west and east of the development respectively.

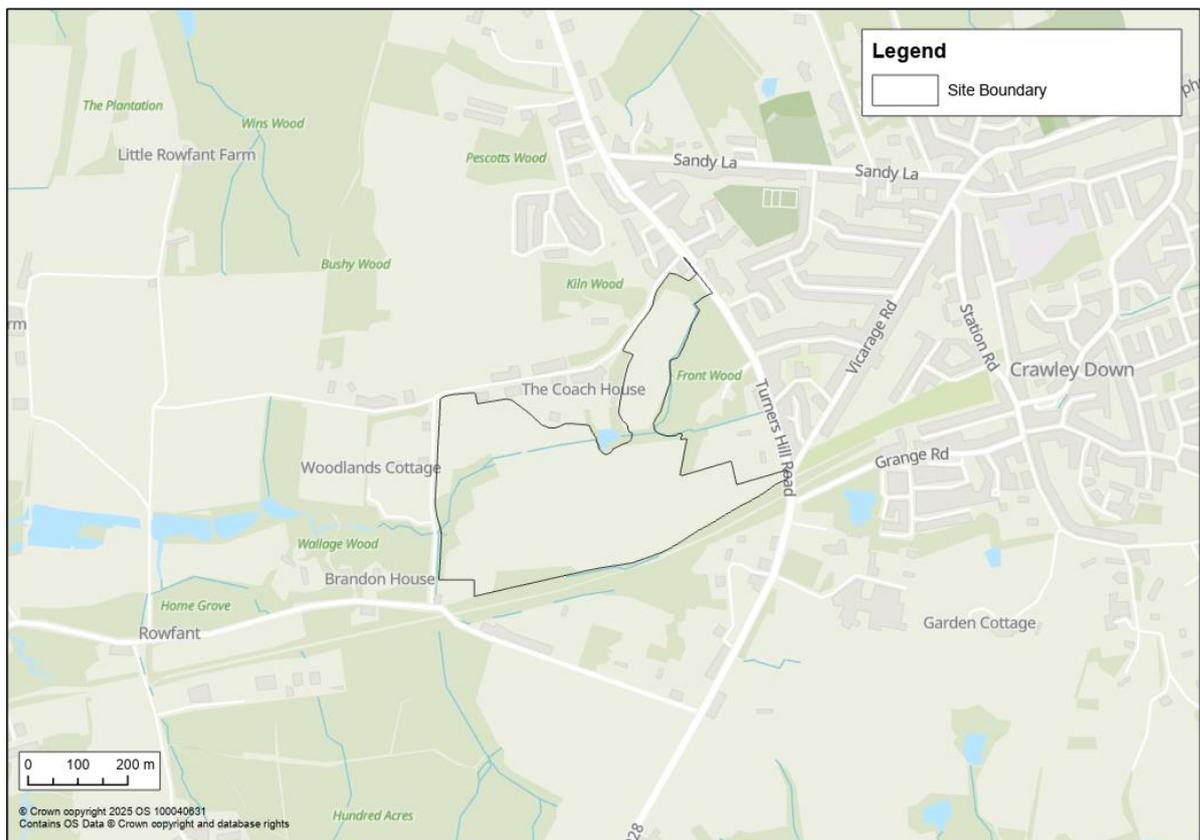


Figure 1: Site Boundary

3. THE PROPOSED DEVELOPMENT

- 3.1 The proposed development is for an outline planning application (appearance, landscaping, layout and scale reserved) for the erection of up to 200 dwellings, and associated infrastructure including new access points off of Turners Hill Road with associated spine roads and car and cycle parking; the provision of open space and associated play facilities; utilities infrastructure, surface water drainage features, and associated features, on land west of Turners Hill Road and south of Huntsland, Crawley Down, West Sussex.
- 3.2 The utility assessments and quotes within this report are based on an illustrative masterplan, providing 200 units comprising a mixture of 1 - 5 bed units.
- 3.3 Based on the building area information for the site, the following load assessments were made for the new buildings. At this stage, load allowances for the play facilities have been made based on UK Buildings Guidance and best practice using previous project examples. As per the Mid Sussex District Plan (2021-2039), an electric vehicle charging point has been estimated in line with Schedule 1 - Part S of the Building Regulations.

Table 2: Load assessments for new buildings

Water (l/s)	Power per Unit
7.5 L/s as per BS 806 Part 3 only, using a standard set of fittings per unit. As per the sustainability strategy additional measures will be implemented to limit the water useage to 85 litres per person per day This excludes the Fire requirement water demand. Water demand in case of fire will be assessed as per the fire strategy in the next stages of design development.	<p><u>All Electric</u></p> <p>Houses: 200 x4.2kVA = 840kVA</p> <p>This load includes an allowance for a single 7.2kW EVC (electric vehicle charging point per dwelling)</p> <p>2no pumping stations 2 x50kVA = 100kVA 1no sitewide infrastructure = 50kVA including EVC.</p> <p>Total = 965kVA</p>

3.4 The utilities that are required for the development:

- Electricity (UKPN)
- Telecommunications – there are a number of providers available in the area (EE, Three, O2, Vodafone)
- Water (South East Water)
- Sewerage and Drainage (outside of Ramboll Utilities assessment scope)

4. SEWERAGE AND DRAINAGE (OUTSIDE OF RAMBOLL UTILITIES ASSESSMENT SCOPE) EXISTING UTILITY SEARCHES

- 4.1 An existing utility search was carried out in February 2024 for the site. Tables 4 and 5 below list all the companies who have been contacted and their search results.
- 4.2 Currently UKPN, Openreach and MBNL have apparatus in the development area. There are also utility companies that have apparatus within the vicinity of the site boundary. They are listed in Table 3 below. Their existing utility drawings can be found in Appendix A.

Table 3: Existing Utility Search

Asset Owner	Apparatus Status
UK Power Networks (UKPN)	Present – Refer to drawings – Appendix A
Openreach	Present – Refer to drawings – Appendix A
Mobile Broadband Network Limited (MBNL)	Present – Refer to drawings – Appendix A
South East Water	Adjacent – Refer to drawings – Appendix A
Southern Water	Adjacent – Refer to drawings – Appendix A
Thames Water	Adjacent – Refer to drawings – Appendix A
Scotia Gas Networks (SGN)	Adjacent – Refer to drawings – Appendix A
Virgin Media	Adjacent – Refer to drawings – Appendix A

In addition, Table 4 below shows the results from further companies contacted for existing utility information that do not have infrastructure in the development area.

Table 4: Line Search

Company	Response
Arelion	Not in area of interest
GTC Pipelines	Not in area of interest
CityFibre	Not in area of interest
Colt Technology	Not in area of interest
Eleclink Interconnector	Not in area of interest
Equans	Not in area of interest
EXA Infrastructure	Not in area of interest
KCOM	Not in area of interest
Lumen Technologies	Not in area of interest
Indigo Pipelines	Not in area of interest
Onshore Cables	Not in area of interest
Sky UK Limited	Not in area of interest
Sota	Not in area of interest
Verizon	Not in area of interest
Vodafone	Not in area of interest

4.3 The information listed above is based on existing record information from the utility suppliers and should be confirmed by a buried services scan prior to any works commencing.

4.4 Existing UK Power Networks

4.4.1 UK Power Networks records show there are LV and HV networks within the development area (Figures 2 & 3). The information provided in the maps is for guidance only, the actual positions of the apparatus should be confirmed on site and the red line boundary checked to understand if the lines run within the development area.

4.4.2 Running south to north and parallel to the west boundary, UKPN has overhead HV cables installed on pylons. The HV cables then route to the centre of the northern half of the development before distributing both west towards the adjacent properties and northeast towards the Woods View development (Figure 2).



Figure 2: Existing UK Power Networks overhead HV lines

4.4.3 The LV networks mainly run east to west, originating from Turners Hill Road and routing along the site boundary shared with the Huntsland Private Road to serve the existing properties surrounding the private road. The LV network then continues through the centre of the development area to serve the adjacent properties to the west of the site.

There is also an below ground LV Main running from Turners Hill Road into the site serving the telecommunications mast at the south east corner (Figure 3).



Figure 3: Existing UK Power Networks LV lines

- 4.4.4 We recommend that if any buildings are proposed near to the site boundary where the overhead HV lines route – UKPN are consulted to confirm if that the proposal is acceptable.
- 4.4.5 It should be noted that whilst this information has been provided, the developer is recommended to review the wayleave information before acquisition and before planning any site layouts. The standard UKPN easement is 1.5m on either side of the cable.

4.5 Existing Telecoms Network

- 4.5.1 The utility searches show that a telecommunications mast belonging to MBNL forms the only infrastructure in the development area, located in the south east corner of the site. MBNL have informed us that the mast currently is currently in use.
- 4.5.2 Additionally, there are overhead Openreach (Light Green) networks routing along the boundary with the Huntsland Private Road to serve the existing surrounding properties and networks to the west of the site. Virgin Media (Dark Green) also has a below ground network running from east to west along the development boundary to the south of the site with a live Openreach connection box also located on the footpath parallel to the A120 (Figure 4).



Figure 4: Existing telecoms networks around the site

4.6 Existing Gas Network

- 4.6.1 There are two gas transporters in the area, SGN and GTC. Records show low pressure 63mm PE (plastic) mains distributing in the Woods View development to the north east of the site and also around the existing properties adjacent to the entrance to the Huntsland Private Road from Turners Hill Road (Figure 5).
- 4.6.2 There is no gas pipework shown within the proposed site boundary and therefore it is assumed that no disconnections or diversions are required, although a ground survey will need to be carried out on site to confirm this (Figure 5).



Figure 5: Existing low pressure gas mains adjacent to the development area

4.7 Existing Water and Sewers Networks

4.7.1 The utility searches and company records do not show water supply infrastructure within the development area (Figure 6). It is therefore assumed that no disconnections are required although ground surveys should be carried out on site to confirm this.

4.7.2 Water supplies in the area are provided by South East Water. Records show a 3 in' cast iron existing water mains serving the properties to the west of the site and 3 in' cast iron pipe routing along the boundary shared with the Huntsland Private Road to serve the existing surrounding properties. A 4 in' mains routes along Turners Hill Road to the east of the site (Figure 6).

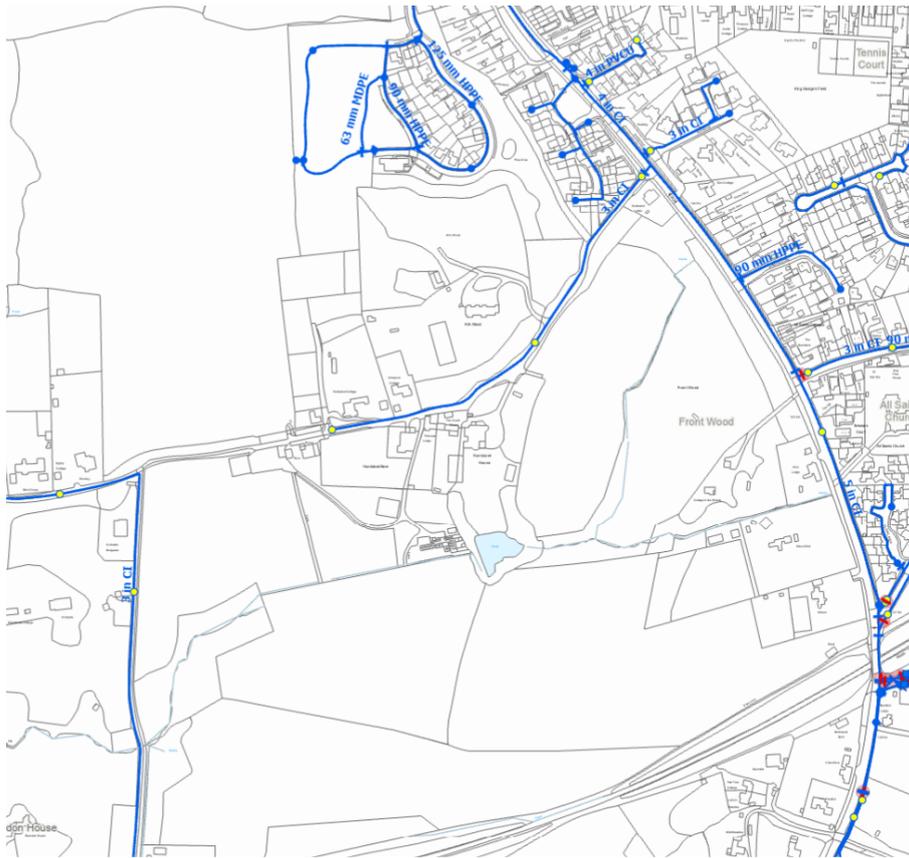


Figure 6: Existing South East Water distribution mains adjacent to the development area

4.7.3 Thames Water is responsible for sewer assets in the area with foul sewers infrastructure routing through the development to the centre of the site to serve the Huntsland properties (Figure 7).

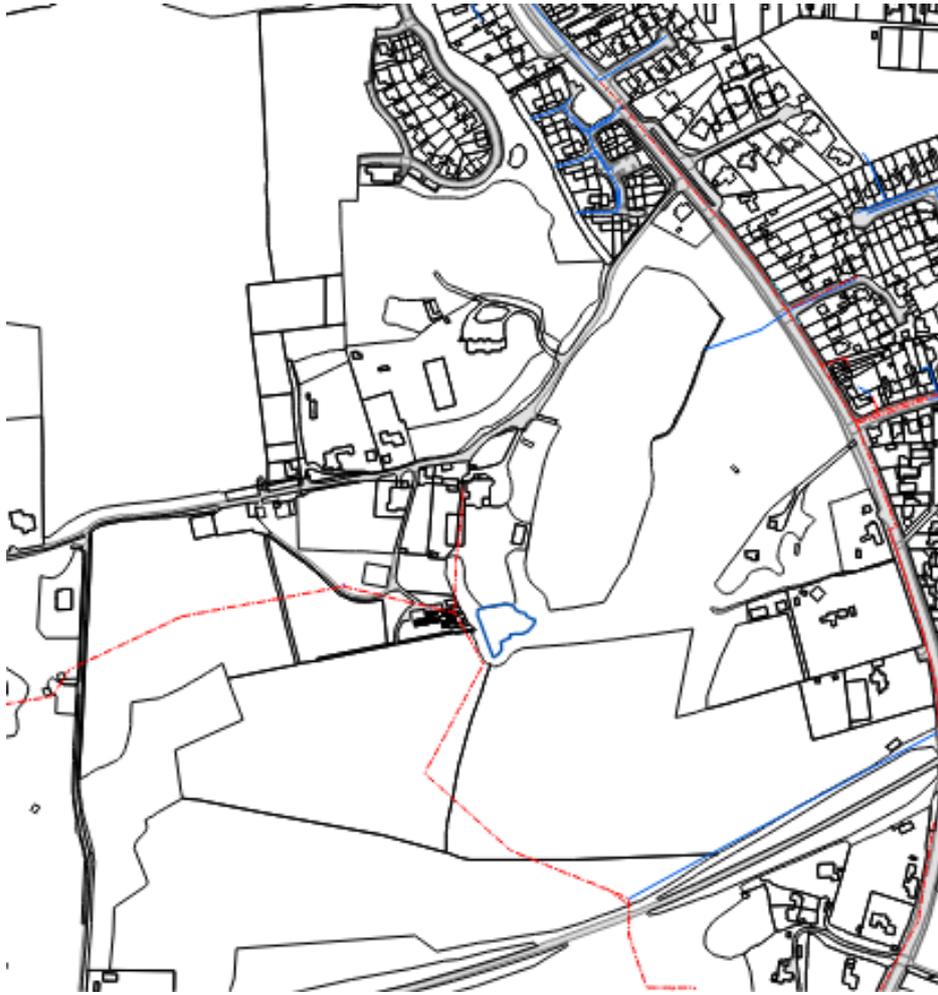


Figure 7: Existing Thames Water foul (Red) sewer network

5. PROPOSED UTILITIES STRATEGY

5.1.1 This section describes the proposed utility strategy to service the development. The initial findings and strategy should be updated following feedback from the utility providers and as the scheme develops from the initial design proposals.

5.2 Services Diversion and Disconnection

5.2.1 The HV overhead lines existing on the site are currently clashing with the illustrative masterplan and potentially constraining the land arrangement and use. A diversion budget estimate from UKPN was requested for a feasible solution to divert the overhead HV lines routing through the site. To divert the lines, UKPN have proposed to relocate the sections north of the Huntsland Private Drive to below ground. The works also include removing poles and the existing pole transformer and replacing it with a ground mounted substation (Figure 8). **Please note the routes shown are indicative.**

The sections south of the Huntsland Private Drive have not been identified as requiring diversions as they route along the south west boundary and therefore do not appear to impact the current illustrative masterplan. This will need to be confirmed at the next design stages and UKPN contacted if further diversions are necessary.

The estimated cost for the diversions from UKPN is **£180,000** (including VAT).

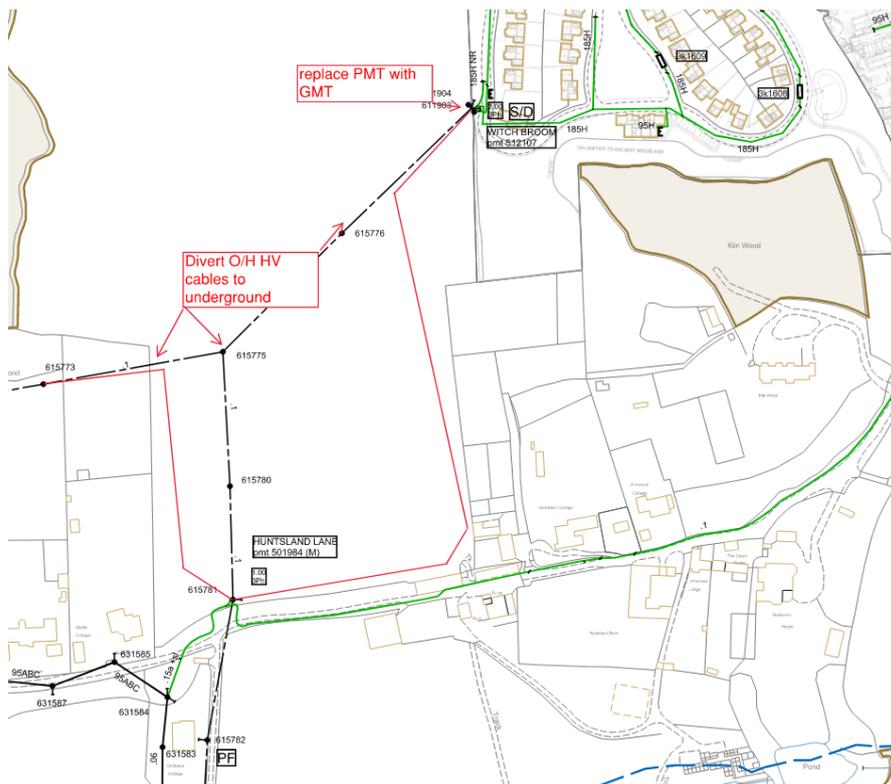


Figure 8: HV overhead lines to be diverted

Additionally, the below ground LV mains feeding the telecommunications mast may need to be diverted as it appears to clash with the proposed vehicle entry point to the development area. However, this may only require temporary disconnection and reinstatement as the road is constructed. It is also dependant on if the mast is to be kept in its current location or removed from site and therefore diversion or disconnection of the LV main reviewed in conjunction with the mast at the next design stage (Figure 9).

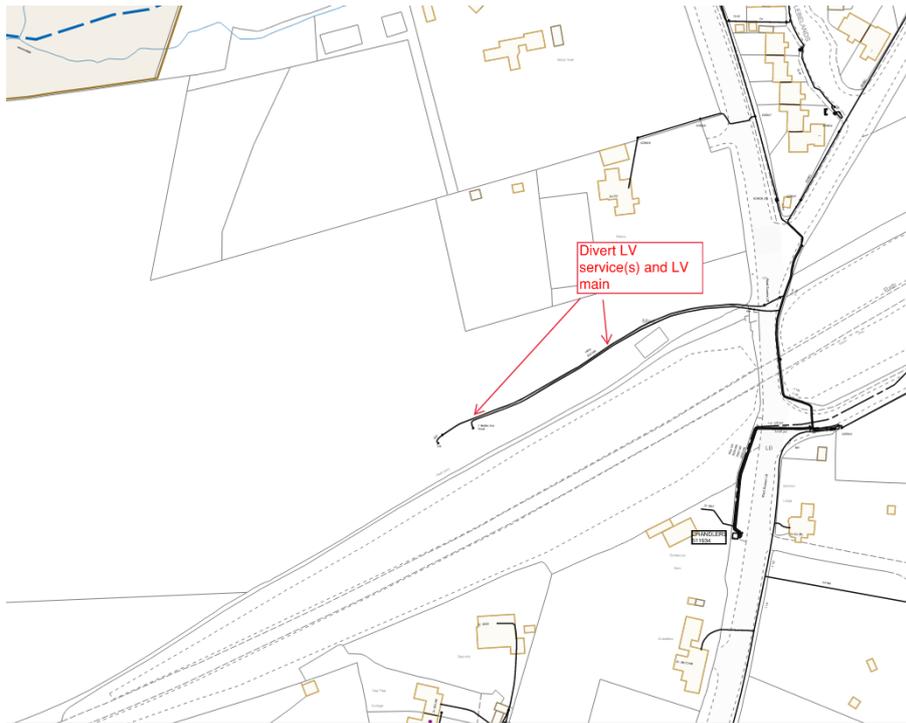


Figure 9: Telecommunications LV main

5.2.2 As part of the proposed works to the development area, it is also anticipated that the existing LV supply routing across the center of the site through the Huntsland Private Road to serve the properties to the west will have to be disconnected or diverted. This however is dependent on the development of the site. It may be that the overhead LV lines do not affect the development buildings or facilities and therefore can remain as is. With UKPN's agreement, an option may be to replace the overhead lines with buried services. This should be a consideration when planning the site layout. The costs of these works should be incorporated into the development and construction of the site as the project advances (Figure 10).

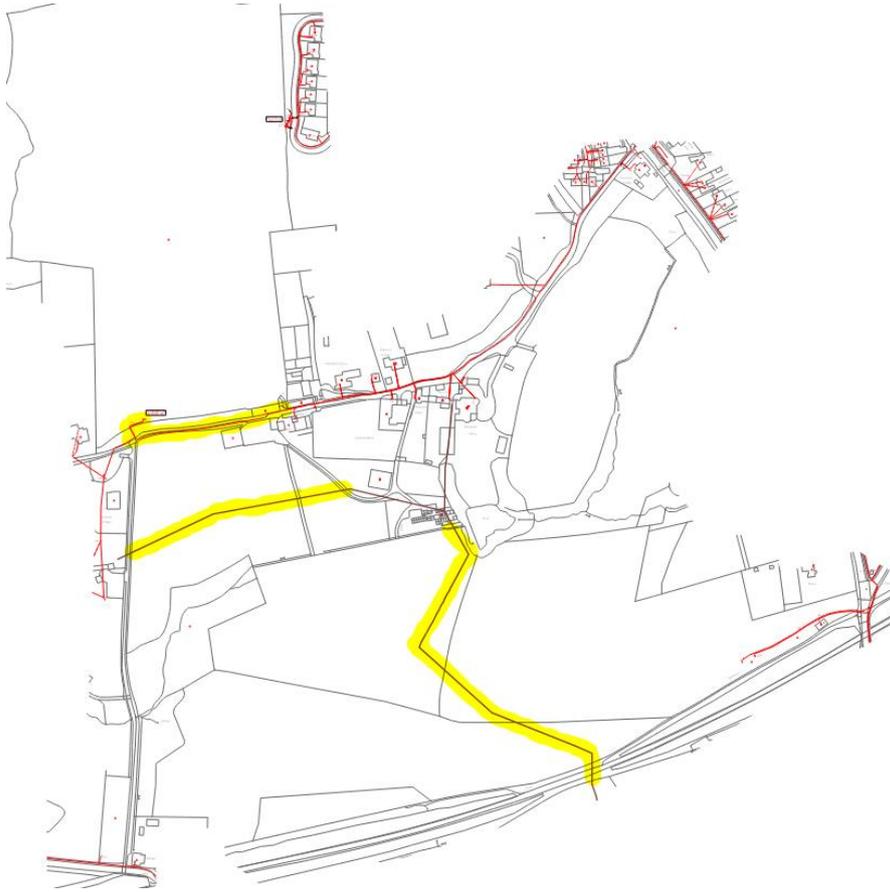


Figure 10: Highlighted LV cable and Thames Water foul sewer

5.3 **Water**

- 5.3.1 A budget quotation to provide water supplies for the development area was requested from South East Water. The capacity assessment determined that the proposed development cannot be accommodated without the need for off-site reinforcement.
- 5.3.2 To maintain levels of service in the network and for the development, it will be necessary for the South East Water to undertake additional reinforcement work prior to the site connection works taking place. It is recommended that advance discussions are held with South East Water at future design stages to ensure that sufficient time is incorporated within the construction programme so that the reinforcement may be commissioned. The proposals provided are subject to there being no other developments taking place before the works are requisitioned.
- 5.3.3 An accredited WIRS Self-Lay provider (SLP) may be chosen to install the onsite mainlaying where the developer will be responsible for installing all on-site pipework for distribution to the residential units. If this is not preferred, South East Water are also able to provide the onsite mainlaying based on a discount being applied to the total cost of the scheme.
- 5.3.4 The above costs do not include associated application fees, traffic management and service connection costs. These costs will be detailed once a formal application for a new water supply has been submitted.

5.4 **Power**

- 5.4.1 UKPN have advised that new development will require an existing HV network to be extended to the project demise.

- 5.4.2 UKPN has therefore provided a budget estimation to provide a new Point of Connection (POC) to the HV network along Woods View, Installation of 2No. new substations – these will be connected to the local HV network. New on-site HV network will be routed via underground ducting system, LV mains and services to the 200 properties (1ph per property), the care home (3ph CT metered supply), and an EV charging point (1ph supply). Please note that the cable routes shown are indicative. The location of the sub-stations are indicative only and will be determined at the next stage of the design. Typically sub-station will serve approximately loads within 300m radius.
- 5.4.3 A network study is required to confirm the POC and/or the extent of reinforcement which will be necessary in order to provide the required capacity. This study will be carried out on receipt of request for a formal quotation. Load at the Primary Substation is limited therefore works at the primary may also be required to provide the capacity required (Figure 11).
- 5.4.4 It is important to note that at least one other customer has made an application for connections to the same part of UKPN's distribution system and there is insufficient capacity or other constraints upon UKPN that will prevent all the connections requested from being made. Therefore, **Conditional Interactivity** applies.

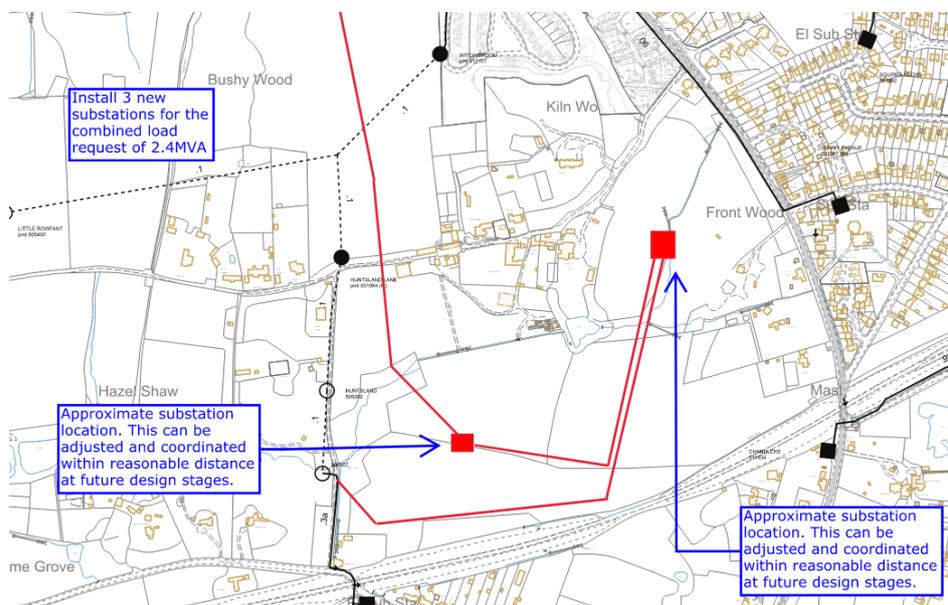


Figure 11: Proposed new substation and development HV network

- 5.4.5 The estimated cost does not include for diversions of any existing assets required to facilitate the connection and assumes the above described POC as being the most appropriate.
- 5.4.6 The budget estimate is based on the Client carrying out all on site excavation and reinstatement works.
- 5.5 **Low Voltage Site Supplies**
- 5.5.1 Low voltage (230 V) supplies to each dwelling will be provided by a network of below ground cables supplied from the new substations. The cables will be installed within an underground trench excavated to a minimum of 0.6m by the developer. The exact routing and trenching requirement will need to be agreed with UKPN.
- 5.5.2 Service cables will enter each dwelling from the new underground network to each individual utility cupboard, using a suitable fused cut out and backboard, in compliance with the UKPN requirements. Associated metering equipment will be installed within the dwelling's utility cupboard by the designated energy provider.

5.6 **Gas**

- 5.6.1 No new gas supplies are required to site as it is anticipated that the development will be 'all electric'. All heating / cooling and HWS generation will be provided by air source heat pumps (ASHPs).

5.7 **Telecoms/Data**

- 5.7.1 An online search using Ofcom's Mobile and broadband checker has confirmed that there is predicted standard, superfast and ultrafast services in the area of the site. However, at this stage of the project, the site has not been registered and a developed site plan with dwelling locations would be required.
- 5.7.2 An underground network of data cables will be required within the development for telecom and data services. Generally, the Client will install underground ducts to facilitate the installation of cables by Openreach.
- 5.7.3 Data/telecom ducts can be installed within multi-service trenches, however the separation distances according to current regulations shall be ensured.

5.8 **Proposed Utilities Services Drawings**

At the time of writing the report no only an illustrative masterplan was available. Proposed utilities routes through the site and firm quotes are to be developed once these layouts are available / fixed.

6. UTILITIES REQUIREMENTS FOR CONSTRUCTION PHASE

6.1 Water

6.1.1 During construction, a water supply would be required for each phase to serve construction plant machinery and site accommodations including offices and welfare facilities. A new connection will be made to the nearest water main.

6.2 Drainage

6.2.1 New connections will be made to the nearest foul water sewer and surface water drainage features to serve mainly site accommodations, including offices and welfare facilities.

6.3 Telecoms

6.3.1 During construction, telecommunications would be required to mainly serve the site offices. A connection would be made to the nearest existing telecommunications supplier line to minimise the disruption to public road and/or footpaths.

6.4 Electricity

6.4.1 Electrical power supply will be required for the operation of the plant, machinery and site accommodations including offices and welfare facilities. A temporary connection application will need to be submitted to UKPN. It is important to note that dependent of the direction taken for the disconnection / rerouting of the current LV network running across the site, temporary power supplies may also be needed to feed the existing properties to the west of the site.