



West of Ifield, Crawley Phase 1 Utilities Report

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Version 1 - Planning submission

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WEST OF IFIELD

PHASE 1 HIGHWAYS AND INFRASTRUCTURE

Site Wide Utilities Strategy

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Contacts

Arcadis Consulting (UK) Limited

80 Fenchurch St

London

EC3M 4BY

+44(0) 20 7812 2000

WEST OF IFIELD

PHASE 1 HIGHWAYS AND INFRASTRUCTURE

Author Dan Hadaway

Checker Tim Fairlie

Reviewer Steve Davies

Approver Steve Davies

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Date

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1 Introduction

1.1 Overview

Arcadis Consulting (UK) Ltd have been commissioned by Homes England to provide a Site Wide Utilities Strategy Report in support of Phase 1 of the proposed development of a strategic site on land to the West of Ifield. The overall development proposals comprise a residential-led mixed-use scheme to deliver up to 3,000 homes, commercial, business and service spaces, a hotel, a 6-8FE Secondary School and a 3FE Primary School. This proposed new, mixed-use community lies within the administrative area of Horsham District Council, adjacent to the administrative boundary with Crawley Borough Council. The site has been identified as a strategic allocation in the draft Horsham Local Plan.

Phase 1 of the overall development comprises the construction of Primary and Secondary Access Roads in the southern area of the overall development site on land currently occupied by Ifield Golf Club (Phase 1A), including a junction on to Rusper Road near to the existing golf club entrance, and construction of a new Link Road from Charlwood Road in the north, extending southwards to tie into the proposed Primary Access Road (Phase 1B). The Phase 1 infrastructure works also include drainage and landscaping within the Phase 1A and Phase 1B highway corridors, as well as the provision of foul and surface water drainage and utility infrastructure within these highway corridors to enable the delivery of the Secondary School and, where possible, provide suitable provision to support the delivery of future development parcels.

This report includes a review of the existing utility infrastructure within and immediately surrounding the overall site for electricity, gas, potable water, sewerage and telecommunications. The report identifies diversionary works that appear to be required to enable the development, based on overlaying asset record plans with the development proposals.

The report also sets out the information associated with the provision of utility services to the overall development, based upon anticipated service demand being provided by the respective incumbent utility companies / service providers. The report aims to identify utility supply infrastructure that will need to be located within the Phase 1A and Phase 1B infrastructure corridors to enable future build-out of the wider development.

A separate Utilities report has been prepared by Homes England's Team, Ramboll, to support the Outline Planning Application for the overall development.

2 Existing Site

2.1 Location

The overall development site is located to the west of Ifield, approximately 2.75 km north-west of Crawley Town Centre. The site is approximately centred on National Grid Reference (NGR) E 524332, N 137482. To the northeast the site is bound by Charlwood Road and beyond this is Gatwick Airport. The Horsham-Crawley railway line is to the south of the site. The existing residential areas of Ifield and Langley Green, associated with the town of Crawley, are located to the east. Ifield West and ancient woodland are located to the south, with the River Mole and further ancient woodland present to the west. The site is predominantly occupied by a mixture of arable and pastoral fields and includes the Ifield Golf Course and Country Club in its southernmost portion.

An extract of Ordnance Survey Mapping, showing the site location and the indicative masterplan proposals is shown in Figure 1 below.

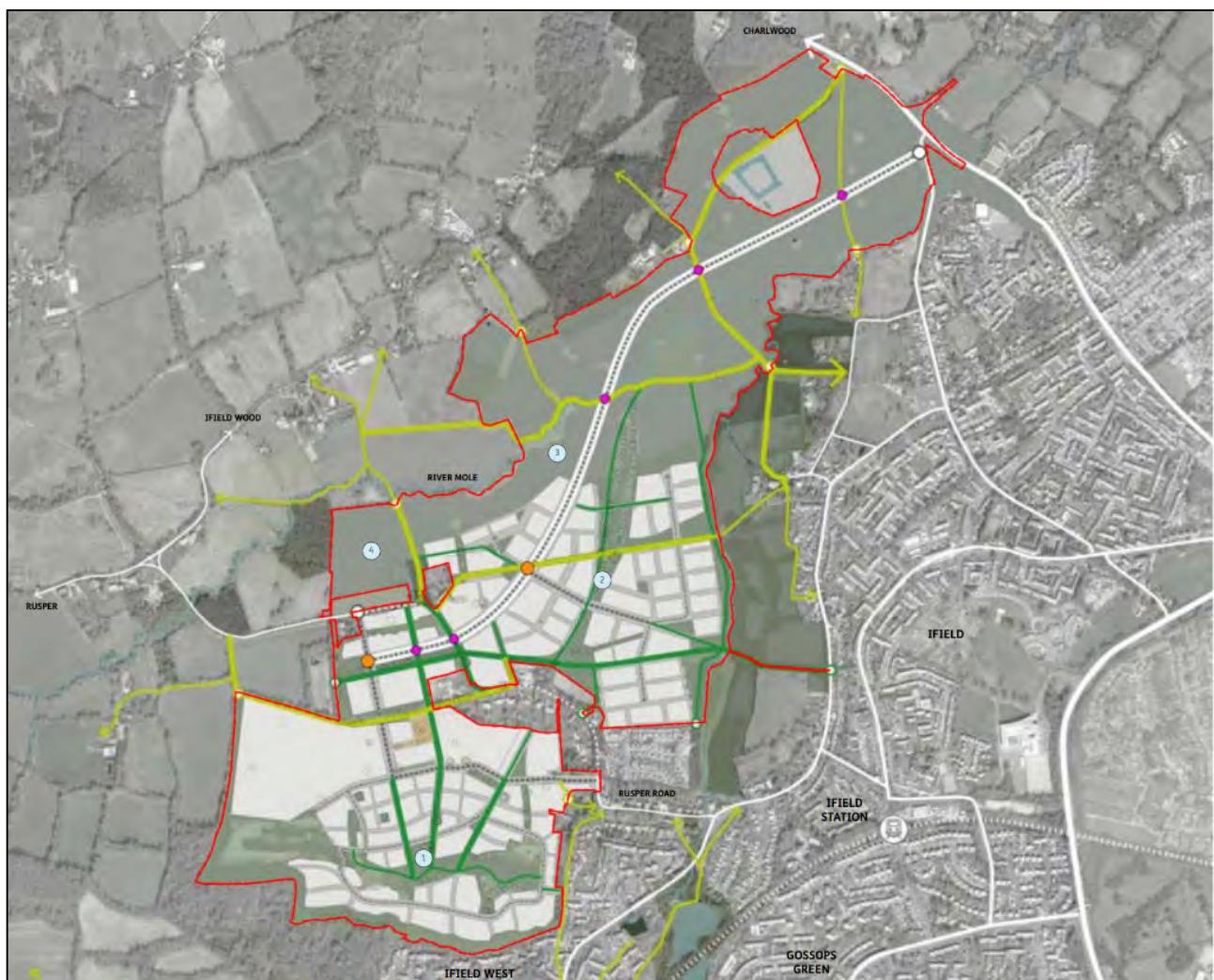


Figure 1: Site Location

Background mapping contains OpenStreetMap data © Crown Copyright and database right 2023

3 Existing Utility Assets

3.1 Current Utility Providers

The following utility providers have been identified as having utility infrastructure within the site, or its immediate surroundings:

- EU Networks Fibre
- UKPN
- GTC Infrastructure
- SGN Gas
- Zayo Fibre
- Vodafone
- Virgin Media
- BT/Openreach
- Southern Clean Water
- Thames Water Sewer Networks

A more comprehensive list of utility companies was also contacted, based upon a LineSearch enquiry, but only those above reported having any infrastructure in the area. Due to the undeveloped nature of the majority of the site, there is very little utility infrastructure within much of the site, but several potential diversionary works have been identified as required, which are described in the remainder of this section of the report.

WSCC Highways have also been contacted to confirm if they are able to provide a list of utility companies that have assets within their existing infrastructure, a list of all the utility companies within the county has been provided and review is being undertaken to confirm no further utility companies have assets within the proposed site or in close proximity.

3.1.1 EU Networks Fibre

The asset plans in **Appendix A** indicate that the fibre main for EU Networks runs predominantly on the south side of Charlwood Rd adjacent to the northern boundary of the site within the existing highway.

The masterplan indicates the north of the site to be landscaped/open space areas, with the Phase 1B Crawley Western Link Road to run from where Charlwood Rd changes to Ifield Avenue, at the junction of Ifield Green.

An enquiry has been made to EU Networks (plantprotection@eunetworks.com) who have confirmed that this section of network is managed by Zayo, please refer to section 3.1.5 of this report.

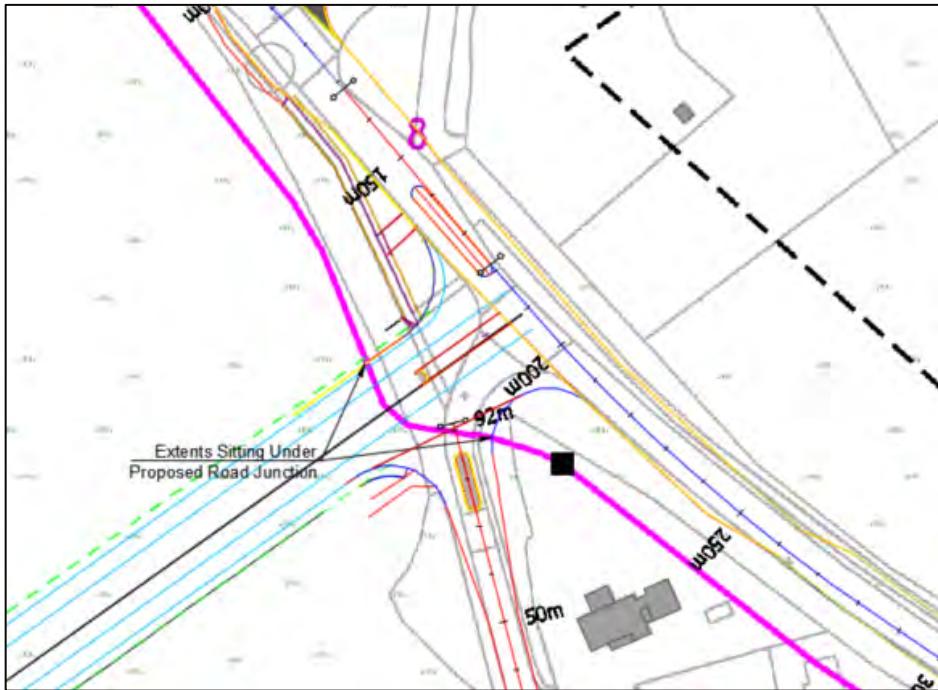


Figure 2: EU Networks Assets Overlaid with Development Proposals - Charlwood Road Junction

3.1.2 UKPN

There is a number of existing UKPN assets shown on the asset plans in **Appendix A** within the proposed overall development site that clash with the proposed Phase 1A infrastructure and cross proposed future development parcels. These have been outlined below. An application (ref: 8500275523, see **Appendix B**) has been made to UKPN, a budget cost £510,000.00 has been provided for diverting the below described.

UKPN asset plans detail the LV service direct to the golf course club house within the proposed site to be overhead, and from the club house an underground LV service continues across the golf course to what appears to be some form of storage area in the middle of the golf course. It is presumed that these LV electrical cables would become redundant upon the closure of the golf club. The overhead LV also crosses the existing access to the golf course, where it is proposed the Phase 1A Primary Access Road will join on to Rusper Road via a new priority junction.

The existing infrastructure as described above is illustrated in Figure 3 on the following page.

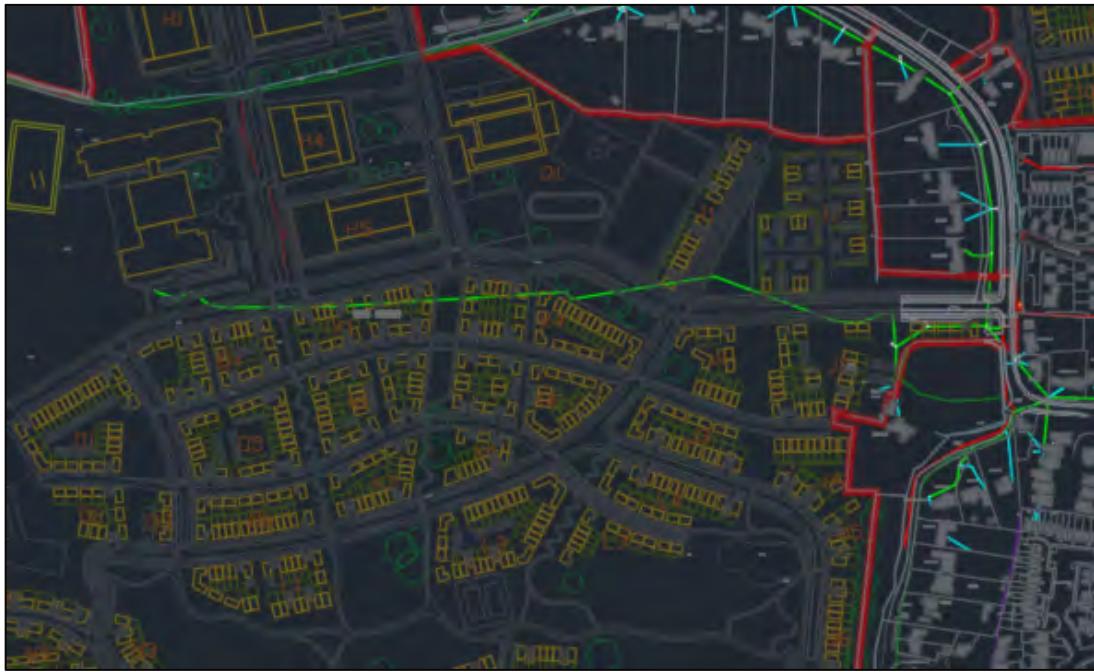


Figure 3: UKPN Assets Overlaid with Development Proposals – Existing Golf Course and Rusper Road Junction

There are existing Overhead LV cables serving existing properties off Rusper Road running along the eastern boundary of parcels H3 & G5, and then turning west and running between parcels G1/G2 and G4/G5 to serve the property north of parcel G3 within the proposed site. This overhead LV also crosses Rusper Road to service properties within and to the Northwest of Parcel F2 of the proposed site as detailed in Figure 4. This overhead route crosses the proposed route of the Phase 1B Crawley Western Link Road.

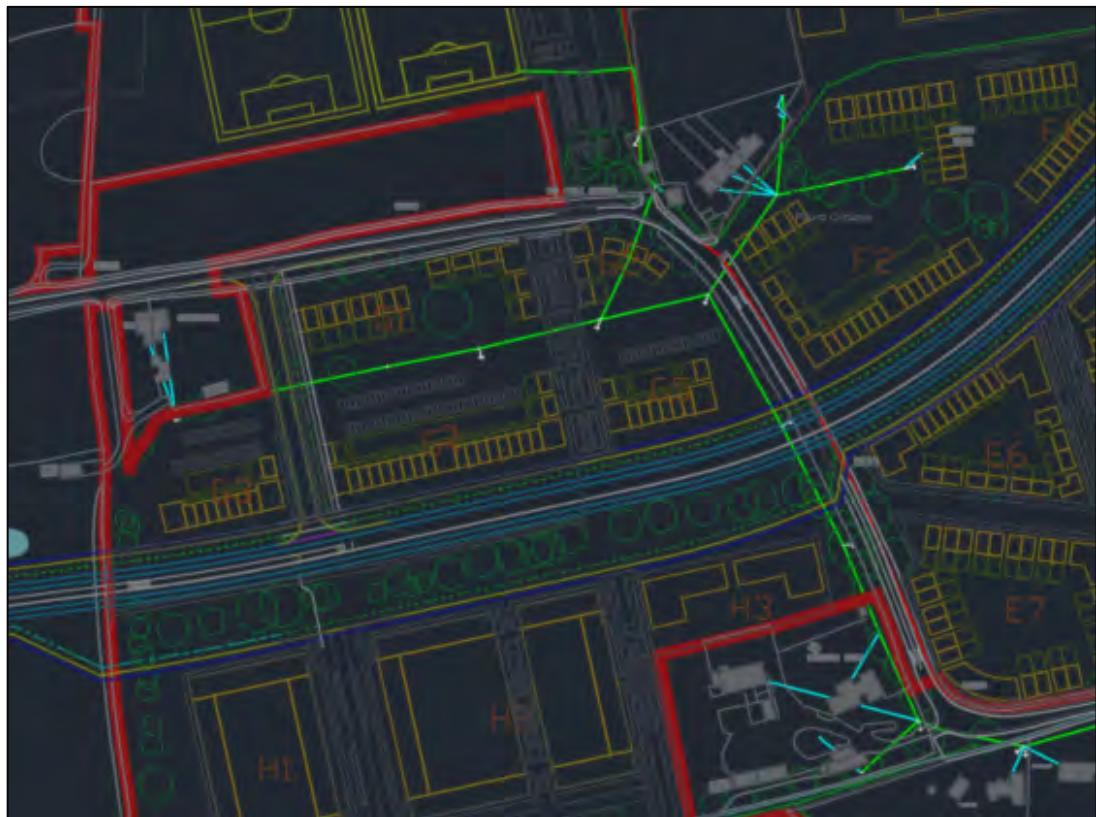


Figure 4: UKPN Assets Overlaid with Development Proposals – Future Parcels H3, G3, 4 & 5 and F2

There is an existing Overhead HV cable that crosses the proposed Crawley Western Link Road within the proposed development site approximately 850m south from the proposed Charlwood Road junction, in the middle of the northern section of the proposed site, as shown below in Figure 5.



Figure 5: UKPN Assets Overlaid with Development Proposals - Phase 1B Crawley Western Link Road, approximately 850m south of Charlwood Road

Asset plans indicate that there are overhead LV and poles as well as overhead service connections within the vicinity of the proposed junction between the Crawley Western Link Road on to Charlwood Road, sitting within the proposed site and the existing highway. Additionally, just south of this junction there appears to be HV overhead cables crossing the proposed Crawley Western Link Road within the proposed site. Please see Figure 6 below.

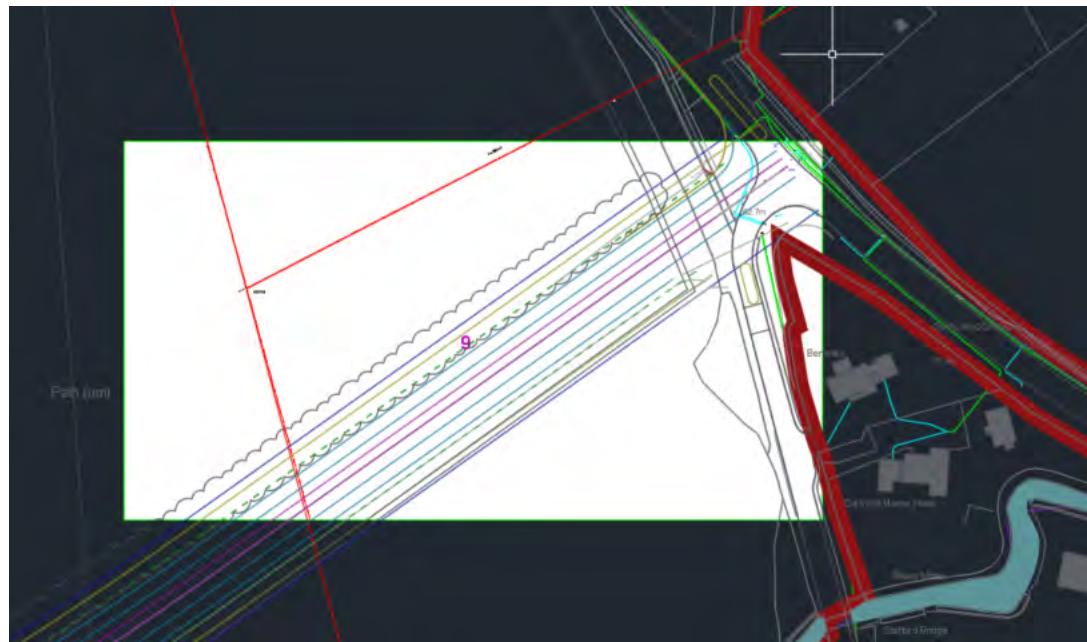


Figure 6: UKPN Assets Overlaid with Development Proposals - Charlwood Road Junction

3.1.3 GTC Infrastructure

GTC asset plans in **Appendix A** show that Gas, Electric and IFNL telecoms infrastructure has been installed to serve the Bovis Homes residential development to the east of Rusper Road, approximately 50m north of the existing golf club access, where it is proposed that the Phase 1A Primary Access Road connects to the existing public highway via a new priority junction.

Points of connection for this As Built infrastructure appear to be taken from within the existing highway extents on Rusper Road, however it is not foreseen that this existing infrastructure will have any implications on the proposed development.

3.1.4 Southern Gas Networks (SGN)

SGN have existing infrastructure within the existing highway domain on Rusper Road, as shown on the asset plans within **Appendix A**, however the low-pressure gas main is indicated as being situated on the opposite side of the road to the proposed Primary Access Road's junction with Rusper Road, as shown by Figure 7 below.

An enquiry application has been made to SGN (see **Appendix C**). SGN have stated from the initial information received they do not anticipate that the arrangement of the proposed junction for the Phase 1A Primary Access Road onto Rusper Road will require any diversion works to the low-pressure main and have provided guidance for working in the vicinity of SGN assets.

The asset plans do not indicate any other infrastructure within the vicinity of the proposed development.

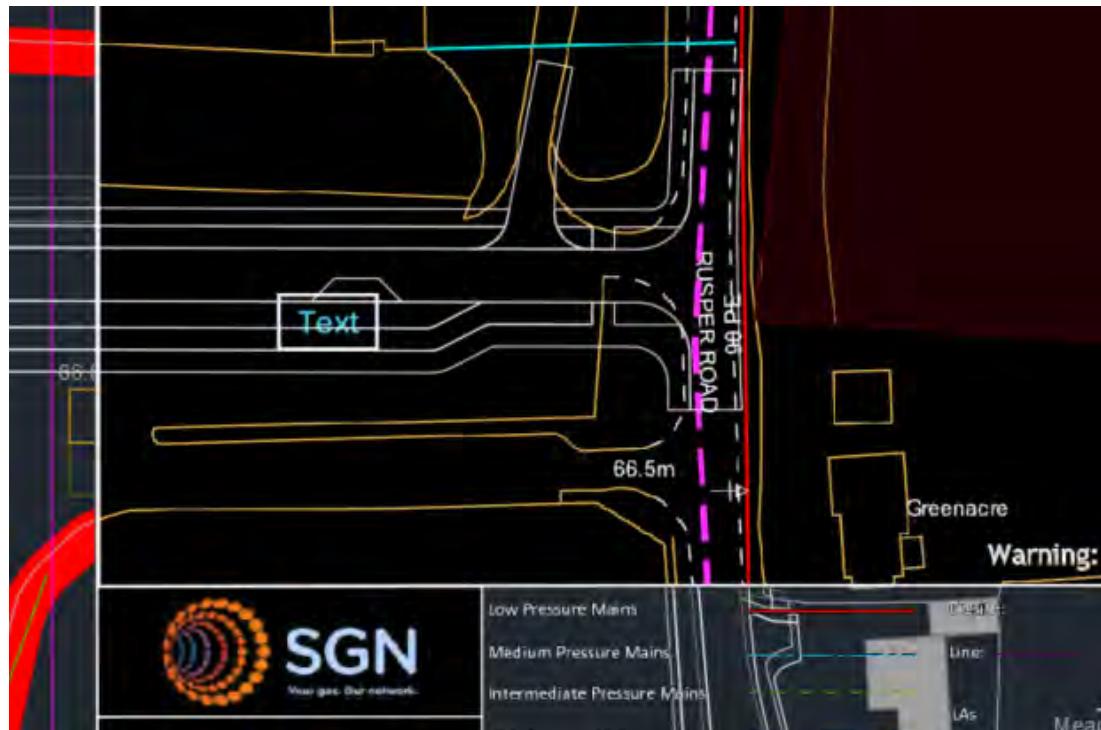


Figure 7: SGN Assets Overlaid with Development Proposals – Phase 1A Primary Access Road / Rusper Road Junction

3.1.5 Zayo Fibre

The asset plans in **Appendix A** indicate that the fibre main for Zayo Fibre runs predominantly on the south side of Charlwood Rd within the existing highway adjacent to the northern boundary of the site, Figure 8.

The masterplan indicates the north of the site to be landscaped/open space areas, however the Phase 1B Crawley Western Link Road is indicated to run from where Charlwood Rd changes to Ifield Avenue, at the junction of Ifield Green.

The section of fibre sitting underneath the proposed junction and access road will need further investigation works to confirm its existing depth, and this will need overlaying against the detailed level design for the junction to confirm the depth of cover under the proposed junction. If appropriate cover cannot be achieved lowering of the fibre main may be required and further consultation with Zayo.

An initial enquiry has been made to Zayo (zayodiversions@jsmgroup.com) to ascertain their requirements and obtain a point of contact for further discussion, it has been confirmed that the Zayo infrastructure sits shares the Virgin Media ducting network and that Zayo will require confirmation of Virgin Medias diversion requirements to allow them to provide a quotation to diverted their cables to suit (see section 3.1.7).

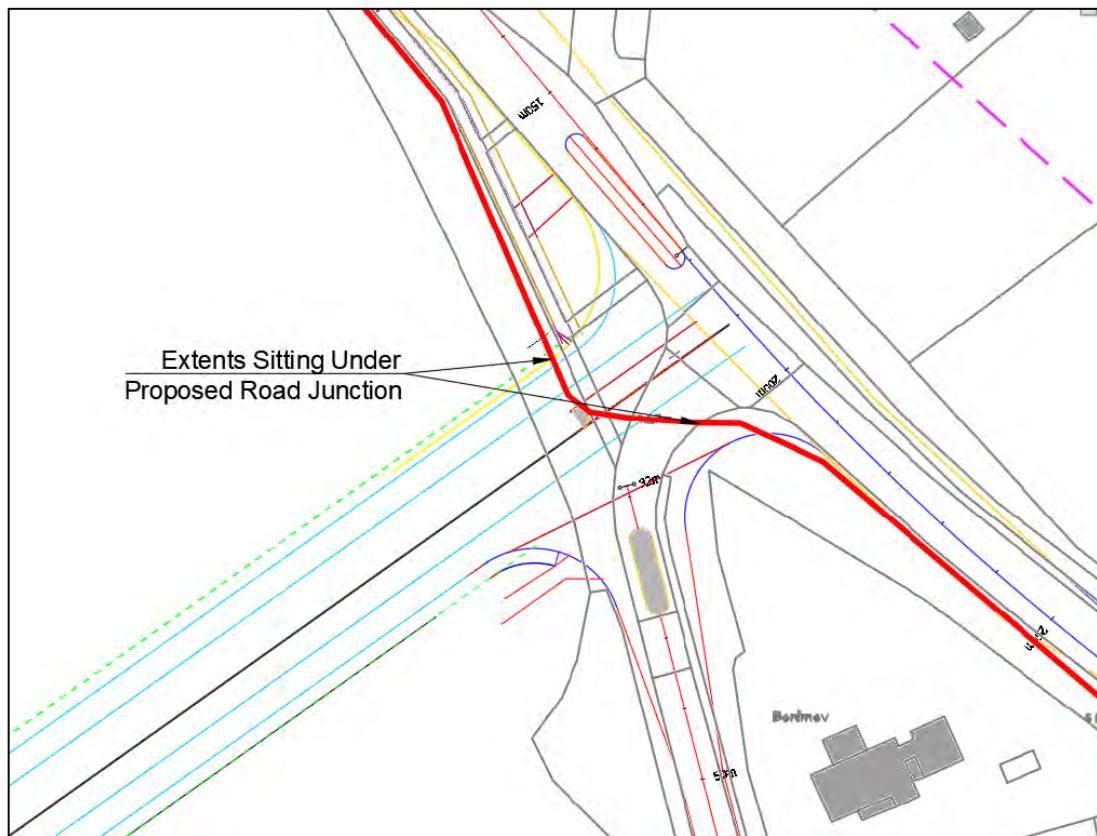


Figure 8: Zayo Assets Overlaid with Development Proposals - Charlwood Road Junction

3.1.6 Vodafone

The asset plans in **Appendix A** indicate that the fibre main for Vodafone Fibre runs predominantly on the south side of Charlwood Rd within the existing highways adjacent the northern boundary of the site, as shown on Figure 9.

The masterplan indicates the north of the site to be landscaped/open space areas, however the Phase 1B Crawley Western Link Road is indicated to run from where Charlwood Rd changes to Ifield Avenue, at the junction of Ifield Green.

The section of fibre sitting underneath the proposed junction and access road will need further investigation works to confirm its existing depth, and this will need overlaying against the detailed level design for the junction to confirm the depth of cover under the proposed junction. If appropriate cover cannot be achieved lowering of the fibre main may be required and further consultation with Vodafone.

Vodafone have provided a budget quotation of £49,333.00 plus vat (ref NRSWA/3.03/009841, see **Appendix D**) to move their fibre cables within the ducts, this does not include the accommodating civil works to position the new ducts. Vodafone have stated that they will require a payment £4,000 plus vat to provide a detailed C4 quotation.



Figure 9: Vodafone Assets Overlaid with Development Proposals - Charlwood Road Junction

3.1.7 Virgin Media

Virgin Media asset plans in **Appendix A** detail infrastructure terminating within the existing highway Ruisper Road just short of the proposed development access on the opposite side of the road, as shown on Figure 10. This should not have an implication on the proposed development access.



Figure 10: Virgin Media Assets Overlaid with Development Proposals - Rusper Road Junction

Virgin Media infrastructure is also shown within the existing highway Charlwood Road following a similar route to EU Networks and Zayo Fibre as detailed in sections 3.1.1 and 3.1.5, as shown on Figure 11. The section of Virgin Media infrastructure sitting underneath the proposed junction and access road will need further investigation works to confirm it has appropriate depth, this will need overlaying against the detailed level design for the junction to confirm the depth of cover. If appropriate depth cannot be achieved lowering of the fibre main may be required and further consultation with Virgin Media.



Figure 11: Virgin Media Assets Overlaid with Development Proposals - Charlwood Road Junction

An initial application (see **Appendix E**) has been made to Virgin Media, ref: VM/CIP/453868, from which it has been stated that a £720 inspection fee will be required to progress the enquiry application.

3.1.8 BT/Openreach

An enquiry (ref: IS254408, see **Appendix F**) has been made to Openreach to ascertain requirements for diversions of the existing infrastructure as outlined below.

Openreach have stated that due to the size of the scheme they have split the 3 different areas requiring diversions into 3 separate surveys and as such have provided 3No. quotations, for undertaking the inspections to allow for extent of alterations to be confirmed and a proposal to be provided, these are outlined below.

Openreach asset plans in **Appendix A** indicate that there is existing infrastructure within the existing highway Rusper Road Figure 12, overlay on the asset plans detail potentially 2No. boxes and 1No. pole sitting within the vicinity of the proposed Phase 1 A Primary Access Road bell mouth, with a underground service coming onto the proposed site which served the golf club. These will require identification on a detailed topographical survey and overlaying on the proposed layout to confirm exact position and extents of network that will require relocating and the existing golf club service terminating. The Openreach quotation ref: 902986 (see **Appendix F**) is £2,278.80 (incl vat) to allow inspection and a proposal to be provided.

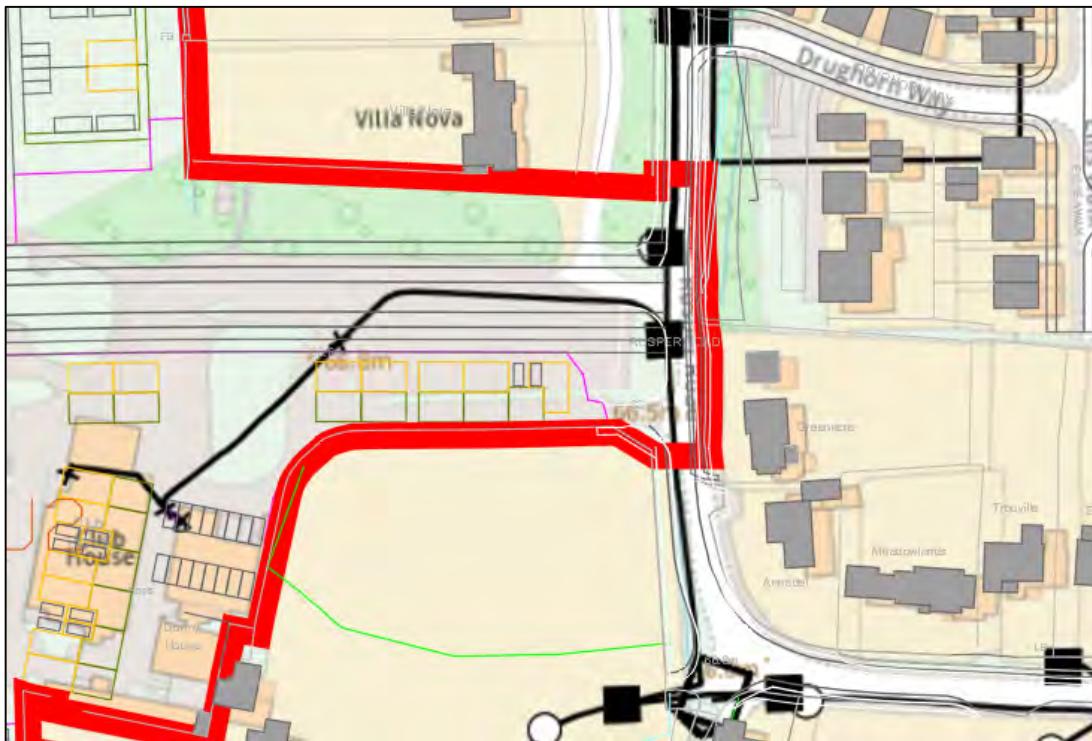


Figure 12: Openreach Assets (WZB03201T) Overlaid with Development Proposals - Rusper Road Junction

Overhead Openreach infrastructure within the existing highway crosses the proposed Phase 1B Crawley Western Link extending south from Charlwood Road, which then crosses areas G and F2 of the proposed site masterplan to service existing properties, as shown on Figure 13. Discussion with Openreach for grounding this section of overhead cable and relocating or terminating the overhead services within the proposed site will be required. The Openreach quotation ref: 903506 (see **Appendix F**) is £2,278.80 (incl vat) to allow inspection and a proposal to be provided.

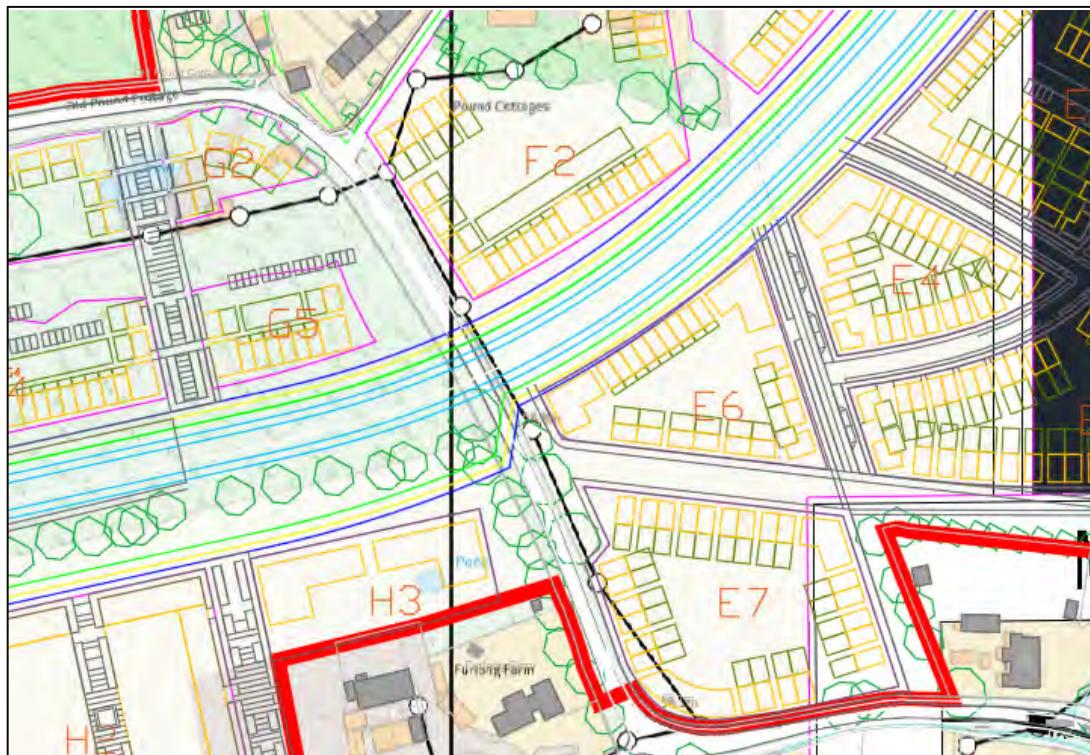


Figure 13: Openreach Assets (VFB03099C) Overlaid with Development Proposals - Rusper Road Junction

Within the existing highway and the proposed junction for the spine road connection to Charlwood Road there are 2No. telecom boxes indicated from overlay of the asset plans, as shown on Figure 14. A detailed topographical survey will be required to confirm exact position and whether these require relocating, additionally further investigation will be required to confirm existing depth of cables with this compared to proposed design levels to ascertain whether there is appropriate cover for these crossing the proposed Crawley Western Link Road, following which engagement with Openreach will be required to confirm acceptance or requirements for lowering. The Openreach quotation ref: 903507 **Appendix F** is £3,418.20 (incl vat) to allow inspection and a proposal to be provided.



Figure 14: Openreach Assets (HYU03117Z) Overlaid with Development Proposals - Charlwood Road Junction

3.1.9 Southern (Potable) Water

Southern Water's potable water asset plans **Appendix A** indicate that there is infrastructure running the length of Rusper Road within the existing highway, crossing the bellmouth of the proposed Phase 1A Primary Access Road access junction which is to be provided in the location of the existing golf club access, as shown on Figure 15. Southern Water's asset plans also show infrastructure crossing the route of the proposed Phase 1B Crawley Western Link Road that extends south from Charlwood Road, at the location where this proposed link road severs the existing Rusper Road alignment, as shown on Figure 16.

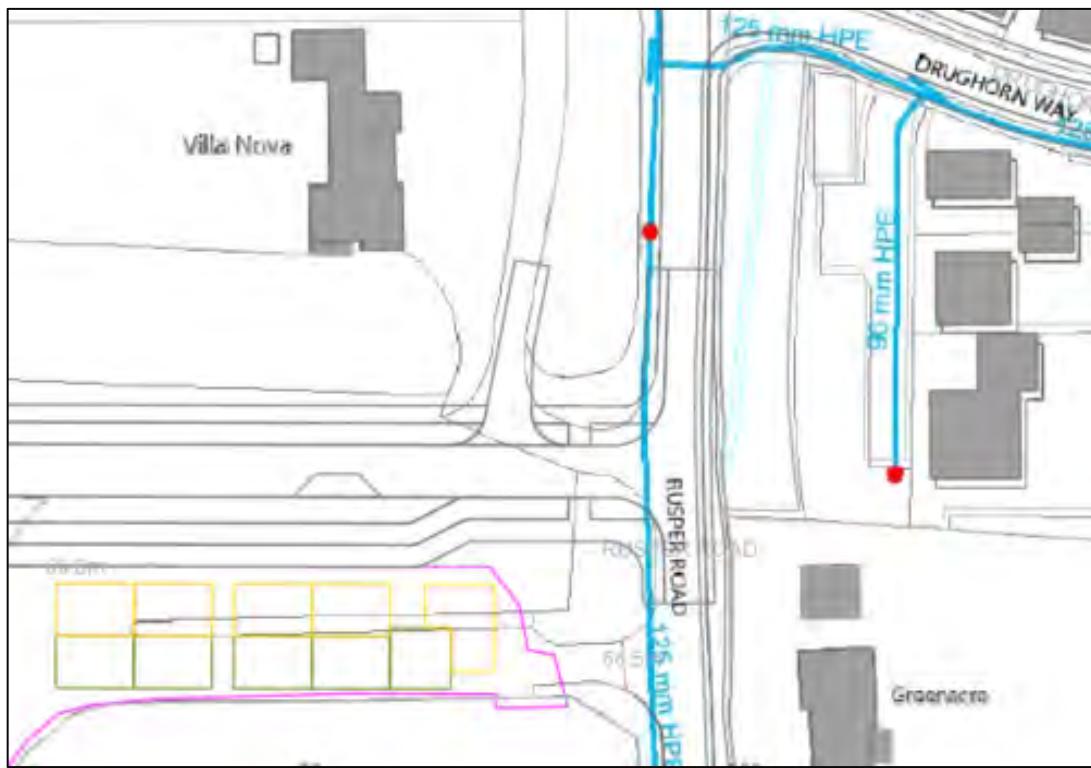


Figure 15: Southern Water Assets Overlaid with Development Proposals - Rusper Road Junction



Figure 16: Southern Water Assets Overlaid with Development Proposals – Proposed Phase 1B Crawley Western Link Road crossing of Rusper Road

There is also a Southern Water main within the existing highway crossing the proposed Crawley Western Link Road's proposed junction onto Charlwood Road, as shown on Figure 17.



Figure 17: Southern Water Assets Overlaid with Development Proposals – Charlwood Road Junction

Further investigation works to confirm if this infrastructure has appropriate depth will be required. This will need overlaying against the detailed level design for the junction. If appropriate depth cannot be achieved lowering of the main may be required and further consultation with Southern Water.

Southern Water require an initial application fee of £2,025.00 (inclu vat) to progress the portal application.

3.1.10 Thames Water (Surface and Foul) Sewers

An application (see **Appendix G**) and enquiry has been made to Thames Water to confirm initial fee and requirements at locations where Thames Water assets have been identified as clashing with the proposed infrastructure as outlined below.

Thames Water have confirmed that the Major Projects team manage diversion of rising mains, foul water sewers larger than 450mm and surface water sewer larger than 750mm, and that anything outside this will require a Section 185 application to the Adoptions Team.

The Major Projects team will require an initial application payment of £1,300.00 plus vat for reviewing the items that fall under their jurisdiction below, from which it can take up to 8 weeks to provide a budget estimate.

Thames Water Major Projects team have also stated the following requirements for working in the vicinity of their apparatus.

- No building within 3.0m of a wastewater rising main.
- If the rising main is diverted, it must be more than 3.0m from existing and new structures.
- We don't permit rising mains within 3.0m of SuDS features.
- The minimum cover of a rising main is 1.0m and the maximum is 2.5m.

- If you are changing the 'use' above a TW asset and assessment will need to be completed to confirm it can withstand the proposed loading.

Thames Water asset plans in **Appendix A** detail existing MH2701 sitting within the vicinity of the proposed Phase 1A Primary Access Road junction on to Rusper Road, as shown on Figure 18. Detailed topographical survey will require overlaying with proposed layout to confirm whether the existing chamber will sit within the extents of the road and not under proposed kerb lines. A level check should also be undertaken to confirm if the design level of this junction still allows for appropriate cover.



Figure 18: Thames Water Assets Overlaid with Development Proposals - Rusper Road Junction

The Thames Water asset plans still detail a rising main crossing the Bovis Homes development and crossing part of the future development parcel C10, as shown on Figure 19. The Bovis Homes development would presumably have required some form of diversion of the rising main. Further investigation is required to confirm the extent and positioning of any such diversionary works.

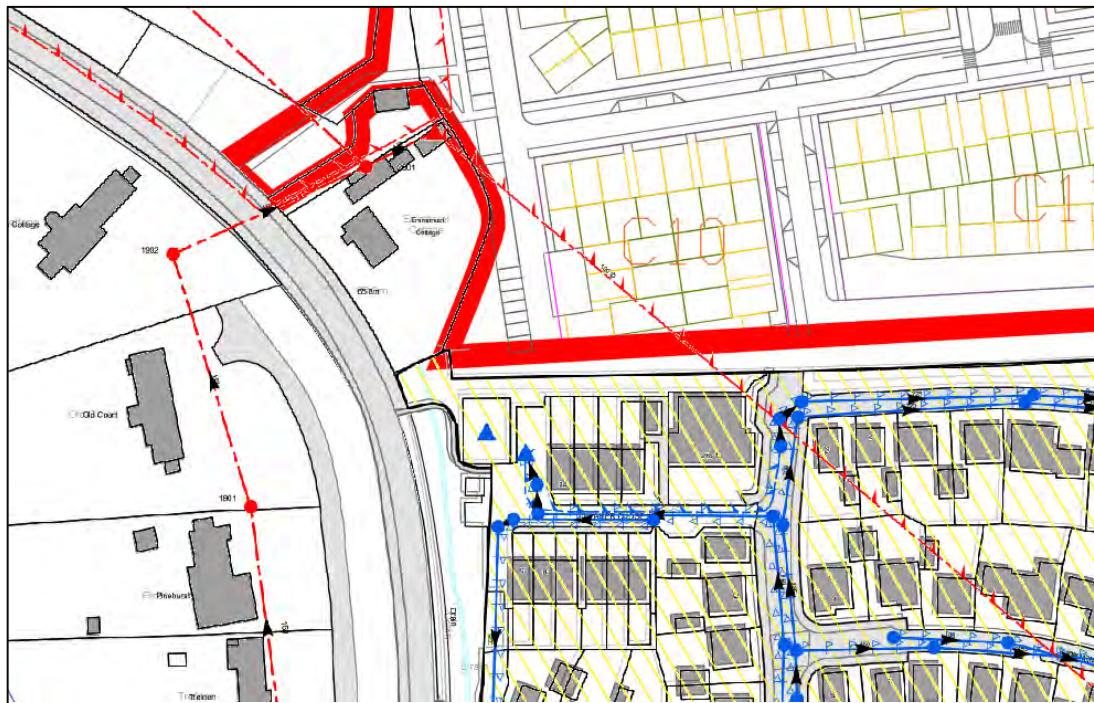


Figure 19: Thames Water Assets Overlaid with Development Proposals - Rusper Road and Parcel C10

The Thames Water asset plans also indicate an existing rising main discharging to a gravity sewer within the proposed site around the perimeter of future development parcels C8, C6 and C7, as shown on Figure 20. An overlay of infrastructure will be required to ensure no buildings, SuDS features, or trees are placed over the sewer, or within an easement zone, presumed to extend 3m either side from the edge of the pipe. Design levels will need to be checked to ensure that they do not compromise required depths of cover. Thames Water have confirmed minimum cover is 1m and the maximum is 2.5m for a rising main.

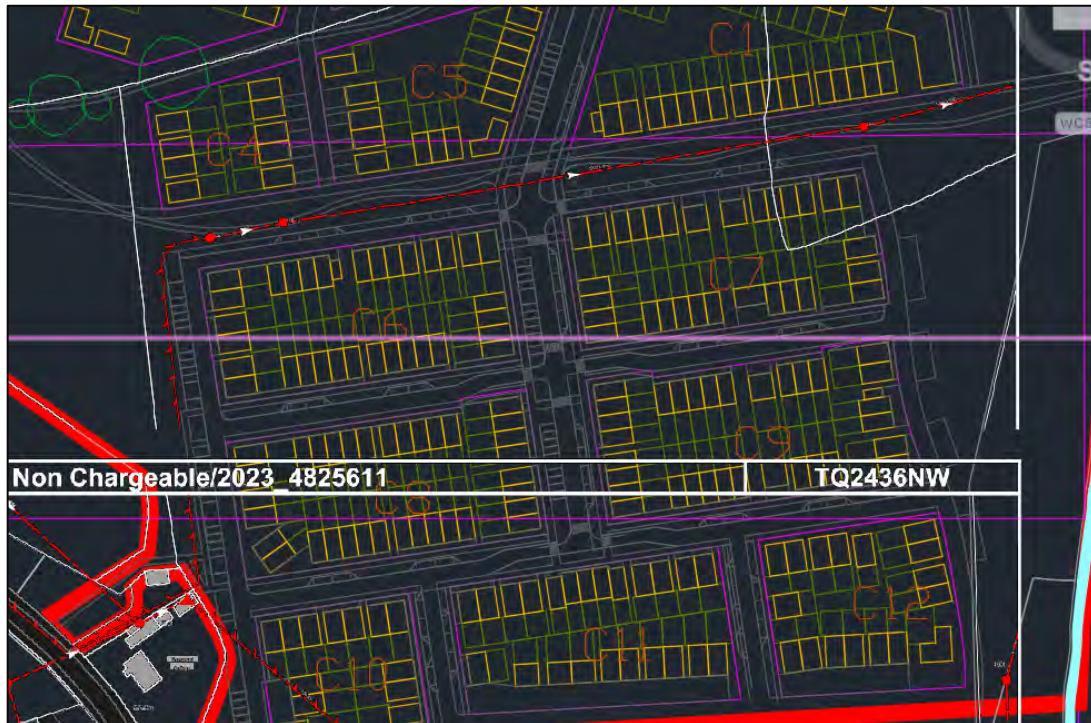


Figure 20: Thames Water Assets Overlaid with Development Proposals - Development Parcel C Overlay

The Thames Water asset plans show that there is an existing rising main detailed running the length of Rusper Road within the existing highway and across where the proposed Crawley Western Link Road extending south from Charlwood Road crosses the existing alignment of Rusper Road, as shown in Figure 21. The development proposals mean that this location will become a pedestrian / cycle only access junction between the proposed link road and Rusper Road.

A GPR survey to confirm the exact position of the rising main is required to ensure alignment of the proposed link road infrastructure and tree planting do not sit above the existing rising main and that the 3m either side of the pipe exclusion zone is maintained. The design levels of the Crawley Western Link Road will need to be checked once finalised to ensure that they do not compromise the required 1m minimum and 2.5m maximum depths of cover over the rising main.

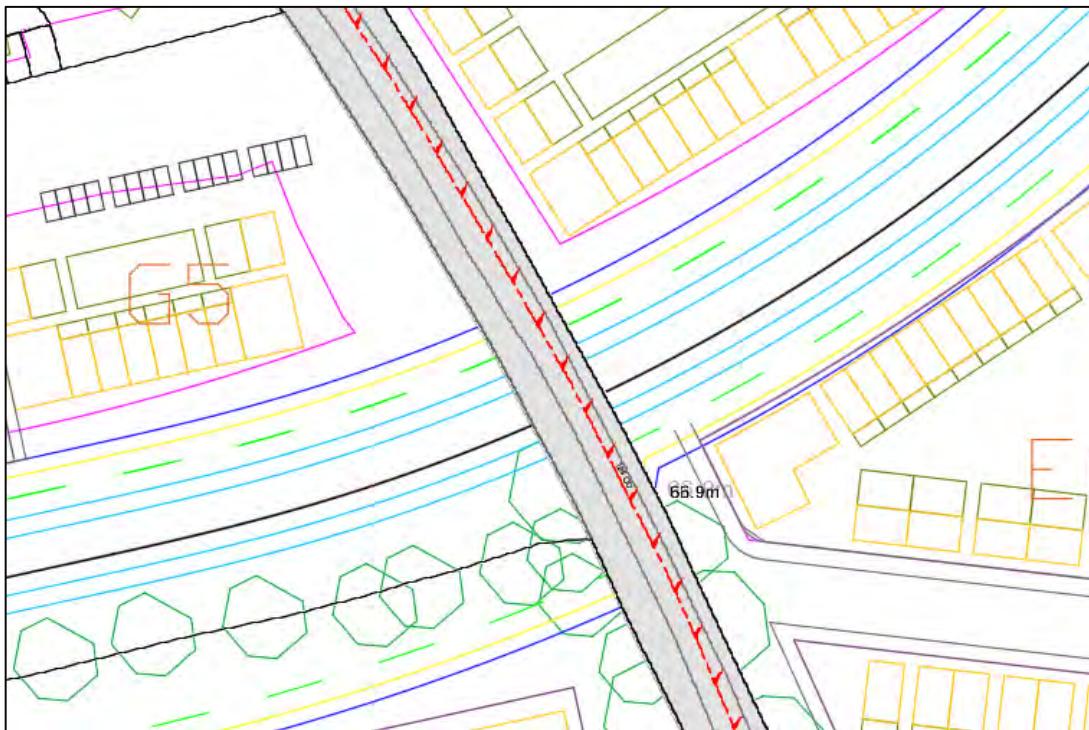


Figure 21: Thames Water Assets Overlaid with Development Proposals – Intersection of Proposed Phase 1B Crawley Western Link Road and Existing Rusper Road

Adjacent to the proposed Phase 1B Crawley Western Link Road access from Charlwood Road, there is an existing gravity foul sewer that crosses the proposed link road within the proposed site, as shown on Figure 22. A check against the design levels of the Link Road will be required to confirm that the sewer still has appropriate cover.

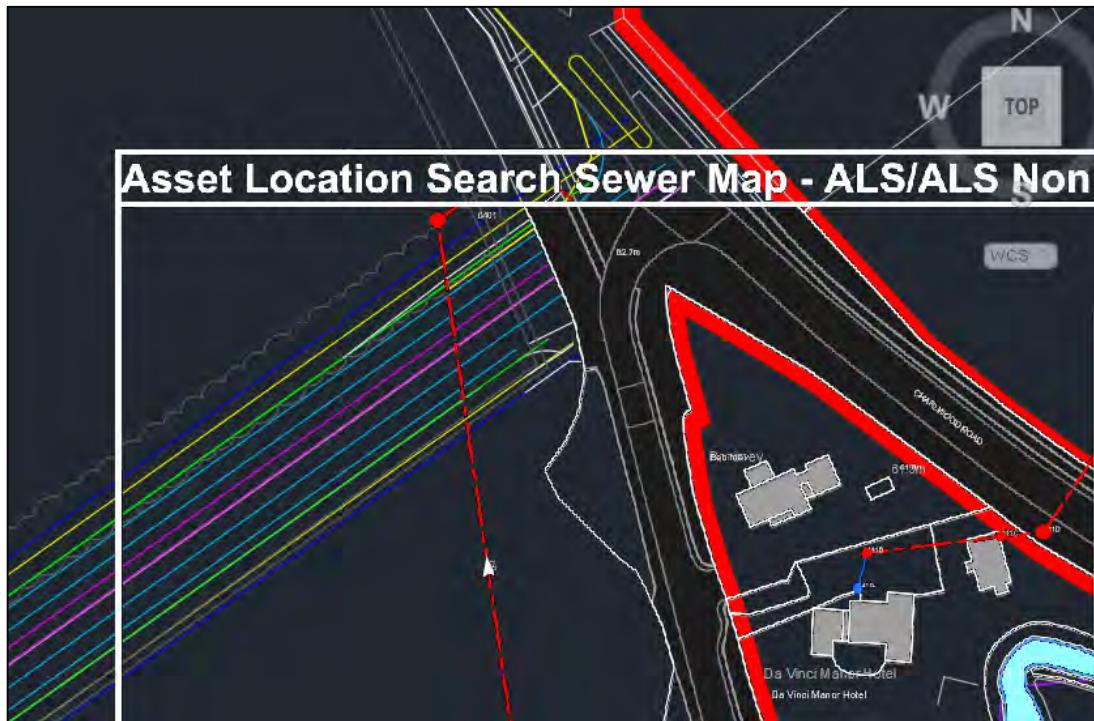


Figure 22: Thames Water Assets Overlaid with Development Proposals – Charlwood Road Junction

Thames Water's asset plans show a combined sewer running from the existing Trivelles Gatwick Hotel that will remain insitu within the extents of the northern section of the proposed site, as shown on Figure 23. The proposed Crawley Western Link Road will cross this combined sewer. A check against the design levels will be required to ensure this sewer has appropriate cover.



Figure 23: Thames Water Assets Overlaid with Development Proposals – Hotel Drainage and Phase 1B Crawley Western Link Road

3.2 Summary

The following key actions are required to progress the existing utilities conflicting with the proposed development infrastructure and confirm the extent of diversion works required. Further topographical and GPR Surveys are currently being arranged for the Charlwood Road and Rusper Road junctions, where the majority of likely diversionary works have been identified. Once these surveys have been completed, the below will be reviewed upon receipt.

- EU Networks - confirmation received confirming this section of network is managed by Zayo.
- UKPN have provided a budget estimate of £510,000.00 for the required diversions noted in Section 3.1.2, once site layout is confirmed a detailed quotation will need to be obtained.
- SGN have responded to the enquiry confirming they do not believe any diversion works will be required.
- Zayo share a duct with Virgin Media, confirm Virgin Media's requirements with Zayo.
- Vodafone have provided a budget quotation of £49,333.00 plus vat to complete the diversion, confirm existing depth and cover with proposed design and confirm if diversion works are required, if required pay £4,000 plus vat and obtain C4 quotation.
- Virgin - confirm existing depth and cover with proposed design and pay £720 application fee with Virgin to confirm requirements for building over their existing network and forming the junction on Charlwood Road.
- Openreach have provided 3No. quotations totalling £7,975.80 (incl vat) which will require paying to allow surveys to be undertaken to confirm requirements for diversion works.

- Southern Water - confirm existing depth and cover with proposed design and pay £2,025.00 (incl vat) application fee with Southern Water to confirm requirements for building over their existing network and forming the spine road junctions.
- Thames Water – confirm existing depths and once detailed design is available confirm proposed cover and exact position of infrastructure over existing TW assets, make application fee payment £1,300 plus vat to Major Projects Team to review any required diversions as outlined in section 3.1.10 that fall under their remit and for the diversions that do not fall under the jurisdiction of the Major Projects team make a S185 application to the Adoptions Team to confirm fees and requirements.

Table 1: Existing Utilities Summary Costs Table

| Utility Company | Survey/Application Fee | Diversions Costs | Phases Affected |
|-----------------|------------------------|-----------------------------------|-------------------------|
| UKPN | n/a | £510,000.00 (budget cost) | Phase 1 & Future Phases |
| SGN | n/a | n/a | n/a |
| Zayo | TBD | TBD | Phase 1 |
| Vodafone | £4,000.00 | £49,333.00 plus vat (budget cost) | Phase 1 |
| Virgin | £720.00 | TBD | Phase 1 |
| Openreach | £7,975.80 (incl vat) | TBD | Phase 1 |
| Southern Water | £2,025.00 (incl vat) | TBD | Phase 1 |
| Thames Water | £1,300.00 plus vat | TBD | Phase 1 & Future Phases |

4 New Supplies

4.1 Introduction

The Development Proposals will lead to an increase in utilities demand within the area. Based on the details of the proposed overall development described in Section 4.2, demand estimates have been made for electricity and potable water. These calculations are summarised in **Appendix H**. Based on these demand estimates, further consultation will need to be undertaken with the incumbent local providers to confirm phasing and capacity within their local networks to meet the increased demand.

It is understood that the separate Utilities Statement being prepared by Ramboll may describe additional, more detailed consultations that they are believed to have undertaken with incumbent local providers, but to date we have seen very limited information regarding any such liaison.

4.2 Development Proposals

West of Ifield is a strategic site for up to 3,000 homes as part of a new, mixed-use community within the administrative area of Horsham District Council, adjacent to the administrative boundary with Crawley Borough Council. The site has been identified as a strategic allocation in the draft Horsham Local Plan. Please refer to **Appendix I** for the 'Illustrative Master Plan'.

As set out in the '*Development Specification and Parameter Plan Framework February 2023 Table 2*' the development comprises of.

- Class E – Commercial Business and Service – 36,350 sqm
- Class B2 General Industrial – 5,200 sqm
- Class 1 – Hotels – 80 Beds
- Class C2/3 Residential – 3,000 units
- Traveller Pitches – 15No.
- Class F1 Learning Institutions – 11.75 ha
- Class F2 Local Community – 3,500 sqm

The proposed development will be phased, with Phase 1 comprising the following, the extents of which are shown in Figure 24 on the following page:

- Construction of Primary and Secondary Access Roads in the southern area of the overall development site on land currently occupied by Ifield Golf Club (Phase 1A), shown in purple and blue respectively in Figure 24, and including a junction on to Rusper Road near to the existing golf club entrance.
- Construction of a new Link Road from Charlwood Road in the north, extending southwards to tie into the proposed Primary Access Road (Phase 1B), shown in orange and magenta in Figure 24.
- Provision of foul and surface water drainage and utility infrastructure within the above Phase 1A and Phase 1B highway corridors to enable the delivery of the Secondary School and, where possible, provide suitable provision to support the delivery of future development parcels.
- Improvement works along Rusper Road to accommodate the bus route into the development site.

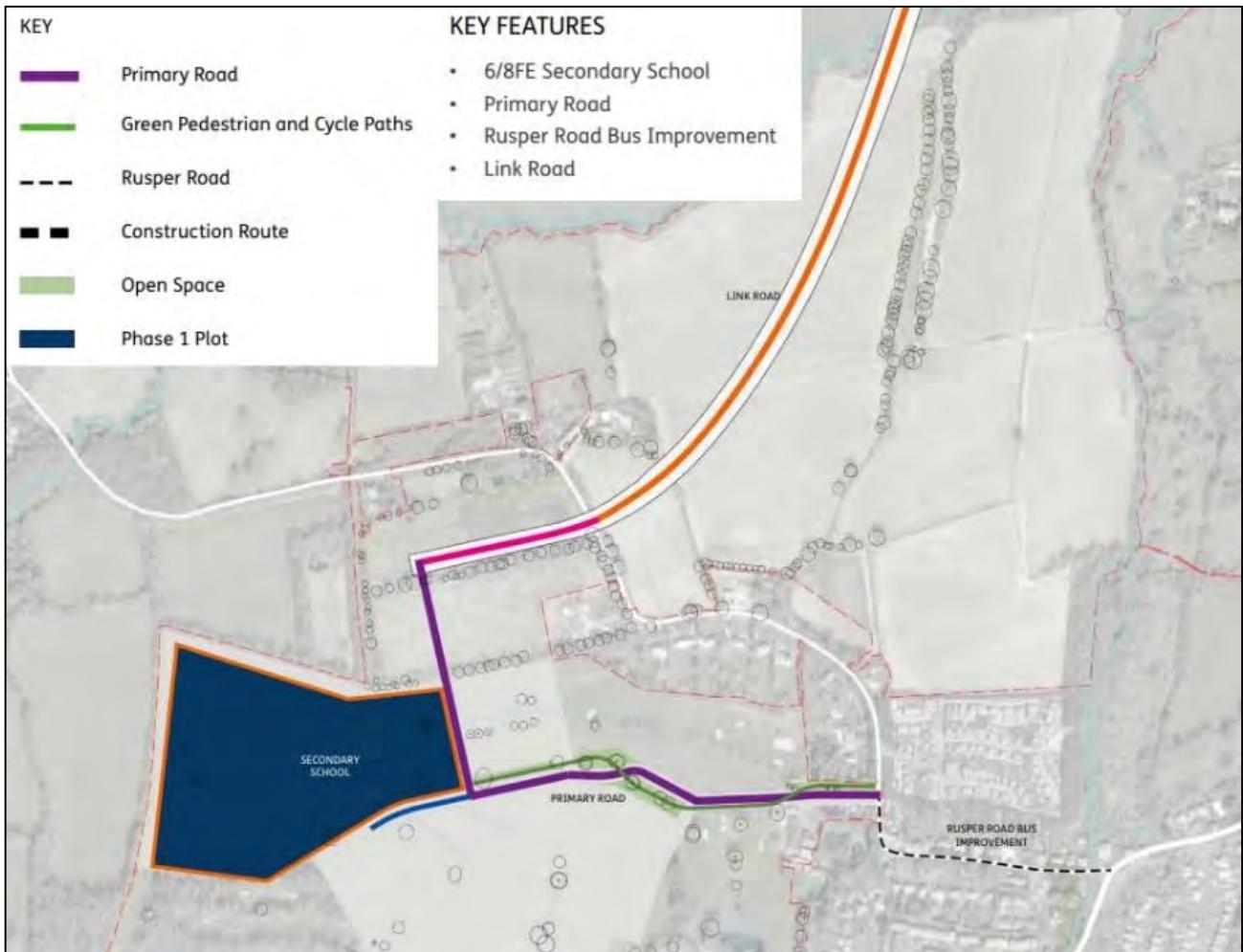


Figure 24: Proposed Development Phase 1 Extents

4.3 Electricity Supply

4.3.1 UKPN

The electric loading calculations in **Appendix H** have made allowance for all future development outlined in section 4.2 to be electric heated, additionally EV charging provision has been allowed for 20% of the estimated non-residential parking spaces and for one space for all the residential dwellings. The total estimated loading requirement after diversity is 23,688.7kVA.

UKPN have provided a budget quotation £23,250,000.00 excluding vat (see **Appendix J**) for installing the infrastructure to provide the site's future capacity requirement in full and providing the service network for the site. The proposed point of connection is at the existing Three Bridges Grid Site, approximately 7km from the proposed development, upgrading the existing equipment at this site will be required to deliver the estimated capacity requirement.

The works required by UKPN are outlined below.

Primary Site Works

- Supply, Install and Commission 2 new circuit breaker at Three Bridges Grid Site

Connection to Existing Network

- Lay approximately 7km of twin circuit, 33kV cable (ducted) between POC and the proposed development.

Customer Site/Substation

- Establish a new Primary Substation
- Install LV aux supply from the local 11kV network.
- Lay 10km of 1x 11kV cables (ducted) around the site
- Install 11kV/ LV Transformer with RMU attached x23 (secondary substation)
- Install LV Supply for housing x3000.

Once UKPN have formally confirmed the new primary substation requirements, the location will need to be confirmed by the masterplanning team working on the Outline Planning Application for the wider development, and this could affect where the HV cables enter the site. The preferred location for this proposed substation is under consideration by the OPA Team.

UKPN have confirmed the local 11kV network at Rusper Road has insufficient capacity to accommodate the secondary school, which is a requirement in Phase 1 of the development, however a separate budget quotation (ref:8600029524) of £1,820,000.00 excluding vat (see **Appendix J**) has been provided for connection to the Southgate Primary Substation 4km from the proposed site which UKPN have advised has capacity for supply to the secondary school only.

Depending on the lead time for delivering the primary sub station, alternative Point of Connections could be considered to deliver the first phase of the site within the required time frame.

The works required by UKPN are outlined below and would follow existing highway corridors.

Grid and Primary site works

- Feeder extension x2 at Southgate Primary

Cable Route Works

- Lay **4km** of 2x 11kV cables (ducted) between Southgate Primary and the above-mentioned customers site including pilot cable

Customer Substation

- Install RMU at connection point to customer site.

It is noted within the UKPN quotations that all civil works within the site boundary are to be carried out by the client and not allowed for within the quotation.

4.3.2 GTC

An application has been made to GTC for a comparison quotation to supply the site with an electric supply and the required infrastructure to service the development, GTC stated that the quotation would be received by the due date 28.9.23, however further communication has confirmed a delay in delivering this quotation, this is being continually chased (see **Appendix K**).

4.4 Gas

Southern Gas Networks are the incumbent gas provider in this area, however due to the proposed development being fully electric heated a supply quotation has not been requested.

4.5 Potable Water

4.5.1 Southern Water

A capacity supply enquiry was made by Ramboll in 2020, following which a report was issued by Southern Water (see **Appendix L**). This report would now be considered out of date, and was based on supplying 3,900No. residential plots compared to the now proposed 3,000No. plots.

The water supply demand for this enquiry was estimated at 46.13 l/s.

Arcadis have undertaken supply calcs for the reduced number of 3,000 residential plots, which also includes allowance for the commercial, community and educational units as outlined in section 3.2. The estimated water demand for units is 28.4 l/s (see calcs in **Appendix H**).

The 2020 report from Southern Water states that there isn't sufficient capacity in the local supply network and that reinforcement works are required as outlined in the below table extracted from the report.

| Location | Existing Main | Proposed Reinforcement Main | Total Length (km) |
|----------------------------------|---------------|-----------------------------|-------------------|
| Whitehall Drive | 90 mm HPE | 280 mm PE SDR17 | 207.41 |
| Rusper Road | 100 mm HPE | 280 mm PE SDR17 | 604.57 |
| Total length of mains (m) | | | 811.98 |

Proposed Reinforcement Mains

Figure 25: Southern Water Report Extract Offsite Reinforcement Works Extents

Ramboll have stated that they are still undertaking conversations with Southern Water and are to provide a subsequent utility statement of their findings. Once this is received it will require review to confirm if the requirements differ from the 2020 report and to confirm the location of the proposed point of connection, the extent of any offsite network reinforcement works, and the timeframe for delivery of these.

Water mains to serve future development parcels should be laid along the Phase 1A & 1B road corridors. Based on the Point of Connection suggested by the previous correspondence summarised above, the supply in to the site would come along Rusper Road to the south-east of the site, and could therefore extend into the site along the Phase 1A Primary Access Road.

4.5.2 IWNL

GTC have been contacted for a comparison quotation to supply the site with a water supply and the required infrastructure to service the development, GTC stated that the quotation would be received by the due date 28.9.23, however further communication has confirmed a delay in delivering this quotation, this is being continually chased (see **Appendix K**).

4.6 Telecommunications

4.6.1 BT/Openreach

There are Openreach assets within close proximity to the site on Charlwood and Rusper Road, and it is therefore assumed that there should not be any significant off site works to supply the site.

An infrastructure application (ref: IS254907& NSI ID CY/01S, see **Appendix M**) has been made to Openreach for the proposed development. Openreach have provided an 'Infra Only' design and Proposal Letter for the

site which details a ducting and chambers network within the Phase 1A and Phase 1B road corridors linking from Charlwood Road to Rusper Road.

Openreach Fibre Checker indicates that 'Ultrafast Full Fibre' is not yet available in this area and the proposal letter does not state the service that can be provided, a further enquiry has been made to Openreach to confirm the available fibre speed.

4.6.2 Virgin

There are Virgin Media assets within close proximity to the site on Charlwood and Rusper Road, and it is therefore assumed that there should not be any significant off site works to supply the site. An application (ref: NBU315034, see **Appendix N**) has been made to Virgin to provide a telecoms supply to the site. Virgin have stated that the planning process can take up to 12 weeks to complete, and as such an application response is expected back by 22.11.23, however the application is being chased for updates to pursue an earlier response.

4.6.3 HyperOptic

As part of the 'Tri-Party Solution', Openreach, Virgin and HyperOptic will use the same JUF106 chamber network throughout the site. Virgin Media require their own ducting between chambers, however HyperOptic share the Openreach Ducts. Although the utility companies share infrastructure minimising the required civils works, each utility company will also provide individual rebates for each end user connected to its network.

Once the Openreach network design for the site is confirmed HyperOptic will be able to detail strategic positions for kiosks to power its network within the proposed development, it has been indicated that this can be achieved with 3No. kiosks. Please refer to **Appendix O** for correspondence.

4.6.4 IFNL

GTC have been contacted for a comparison quotation to supply the site with IFNL telecoms and the required infrastructure to service the development, GTC stated that the quotation would be received by the due date 28.9.23, however further communication has confirmed a delay in delivering this quotation, this is being continually chased (see **Appendix J**).

4.7 Foul & Surface Water Drainage

Foul and Surface Water Drainage requirements for Phase 1 are set out in the separate Arcadis Drainage Strategy report 10051123-ARC-050-ZZ-TR-CE-00001.

5 Conclusions

Utility Diversions

The existing utilities and the potential required diversions are outlined in Section 3.1 of this report, with the subsequent required works and next summarised in Section 3.2 and as below.

- EU Networks – confirmation received this section of network is managed by Zayo.
- UKPN have provided a budget estimate of £510,000.00 for the required diversions noted in Section 3.1.2, once site layout is confirmed a detailed quotation will need to be obtained.
- SGN have responded to the enquiry confirming they do not believe any diversion works will be required.
- Zayo - confirm existing depth and cover with proposed design and confirm with Zayo requirements for building over their existing network and forming the junction on Charlwood Road.
- Vodafone - confirm existing depth and cover with proposed design and confirm if diversion is required, if required pay £4,000 plus vat and obtain C4 quotation.
- Virgin - confirm existing depth and cover with proposed design and pay £720 application fee with Virgin to confirm requirements for building over their existing network and forming the junction on Charlwood Road.
- Openreach have provided 3No. quotations totalling £7975.80 (incl vat) which will require paying to allow surveys to be undertaken to confirm requirements for diversion works.
- Southern Water - confirm existing depth and cover with proposed design and pay £2,025.00 (incl vat) application fee with Southern Water to confirm requirements for building over their existing network and forming the spine road junctions.
- Thames Water – confirm existing depths and once detailed design is available confirm proposed cover and exact position of infrastructure over existing TW assets, make application fee payment £1,300 plus vat to Major Projects Team to review any required diversions as outlined in section 3.1.10 that fall under their remit and for the diversions that do not fall under the jurisdiction of the Major Projects team make a S185 application to the Adoptions Team to confirm fees and requirements.

| Utility Company | Survey/Application Fee | Diversions Costs | Phases Affected |
|-----------------|------------------------|-----------------------------------|-------------------------|
| UKPN | n/a | £510,000.00 (budget cost) | Phase 1 & Future Phases |
| SGN | n/a | n/a | n/a |
| Zayo | TBD | TBD | Phase 1 |
| Vodafone | £4,000.00 | £49,333.00 plus vat (budget cost) | Phase 1 |
| Virgin | £720.00 | TBD | Phase 1 |
| Openreach | £7,975.80 (incl vat) | TBD | Phase 1 |
| Southern Water | £2,025.00 (incl vat) | TBD | Phase 1 |
| Thames Water | £1,300.00 plus vat | TBD | Phase 1 & Future Phases |

| Utility Company | Survey/Application Fee | Diversions Costs | Phases Affected |
|-----------------|------------------------|-----------------------------------|-------------------------|
| UKPN | n/a | £510,000.00 (budget cost) | Phase 1 & Future Phases |
| SGN | n/a | n/a | n/a |
| Zayo | TBD | TBD | Phase 1 |
| Vodafone | £4,000.00 | £49,333.00 plus vat (budget cost) | Phase 1 |
| Virgin | £720.00 | TBD | Phase 1 |
| Openreach | £7,975.80 (incl vat) | TBD | Phase 1 |
| Southern Water | £2,025.00 (incl vat) | TBD | Phase 1 |
| Thames Water | £1,300.00 plus vat | TBD | Phase 1 & Future Phases |

New Supplies

The requirements for new supplies to the site have been detailed in Section 4 of this report and are summarised as follows.

- Electric – UKPN have indicated the extents of the significant offsite works to provide the required electric supply with the Point of Connection approximately 7km away from site at the Three Bridges Grid Site, there will be a requirement for a primary substation on the proposed development and land allocation in the master plan will be required. UKPN have provided a budget cost for supplying the full development's future electric supply, which is £23,250,000.00 excluding vat.
- UKPN have also been asked for the availability of a closer Point of Connection that could initially support the Secondary School electric requirements as part of the Phase 1 works, UKPN have stated the nearest Point of Connection is 4km away from site at the Southgate Primary Substation and have provided a budget cost of £1,820,000.00 excluding vat.
- Gas – due to the change in building regulations a gas supply has not been considered.
- Potable Water – Southern Water have indicated in a report produced in 2020 that significant off-site works will be required, however this was based off a larger development quantum and Ramboll are still undertaking conversations with Southern Water, once Ramboll compile and issue their utility statement this will require further review.
- Telecoms – The Tri-Party-Solution agreement will allow Openreach, Virgin and HyperOptic networks to be laid on site, sharing infrastructure and each still providing rebate for each end user connected. This potentially will provide the best value solution for installing a telecoms network within the proposed development.
- Foul Drainage requirements outlined in the separate Arcadis Drainage Strategy report 10051123-ARC-050-ZZ-TR-CE-00001. Thames Water have indicated an upgrade to the existing trunk sewer will be required.

Table 2: Proposed Utilities Summary Costs Table

| Utility Company | Survey/Application Fee | Budget Costs |
|-------------------------------------|------------------------|--|
| UKPN (proposed development supply) | n/a | £23,250,000.00 excluding vat. (budget cost) |
| UKPN (secondary school only supply) | n/a | £1,820,000.00 excluding vat. (budget cost) |
| Openreach | n/a | n/a |
| Virgin | n/a | n/a |
| Hyperoptic | n/a | n/a |
| Southern Water | TBD | TBD |

Within the Phase1 infrastructure arrangement, space provision would be provided for the phased construction of utilities connections. Procurement of the new utility supplies could follow either a single supplier process with the individual DNOs, inset arrangements (for example IDNO electricity) or multi-utility procurement.