

**No.1 Reading,
29-35 Station Road,
Reading**

Drainage and Utility Infrastructure Assessment

On behalf of
Station Road Dev Co. Ltd

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1 Introduction

- 1.1.1 The purpose of this report is to outline the existing drainage and utility infrastructure within the site boundary and in the area surrounding 29-35 Station Road, Reading and describes the need for a foul sewer build over agreement with Thames Water, utility diversions and provides quotes/details for new utility supply connections.
- 1.1.2 The development comprises the demolition of existing building and erection of replacement mixed use building comprised of hotel (Class C1), office (Class B1a) and flexible ground floor retail use (Classes A1, A2, A3, A4 and A5 use), with associated servicing from Garrard Street.

2 Existing Foul Drainage

- 2.1.1 The existing building is served by a foul water drainage connection into the existing 225mm diameter adopted Thames Water sewer in Station Road, this sewer connects to a 300mm sewer to the north which in turn drops into the existing 1050mm trunk sewer to the north.
- 2.1.2 The 300mm adopted sewer also extends along Garrard Street and into the access road behind the existing building to the west. Thames Water asset records are shown in **Figure 2.1** below.

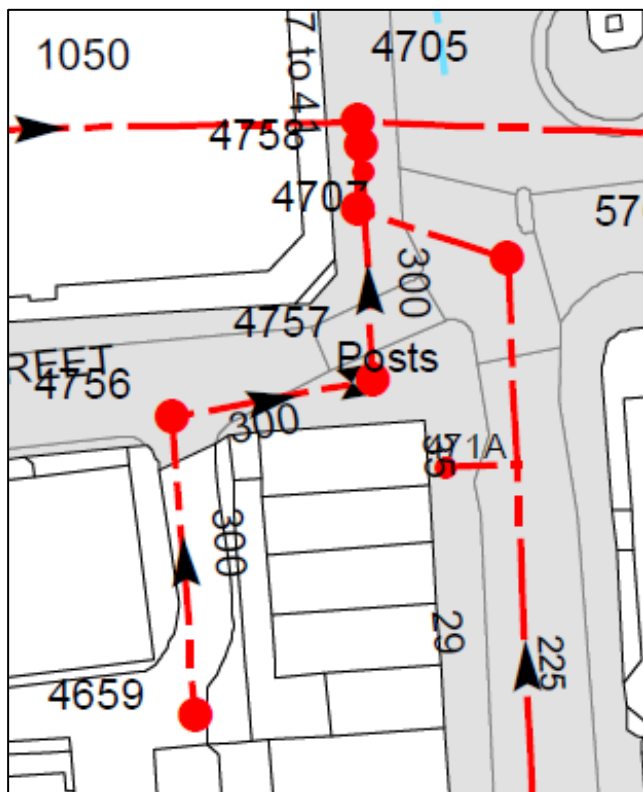


Figure 2.1: Thames Water asset records

3 Existing Surface Water Drainage

- 3.1.1 The surface water from the proposed development is assumed to discharge into a 100mm surface water sewer located in the access road in the west of the proposed development. The surface water sewer was detected during a Ground Penetrating Radar (GPR) survey carried out by Brandon Surveys in January 2016. The sewer is not shown on Thames Water asset records, indicating that it is not adopted by Thames Water.
- 3.1.2 The surface water strategy for the proposed development are described in the PBA Surface Water Drainage Strategy.

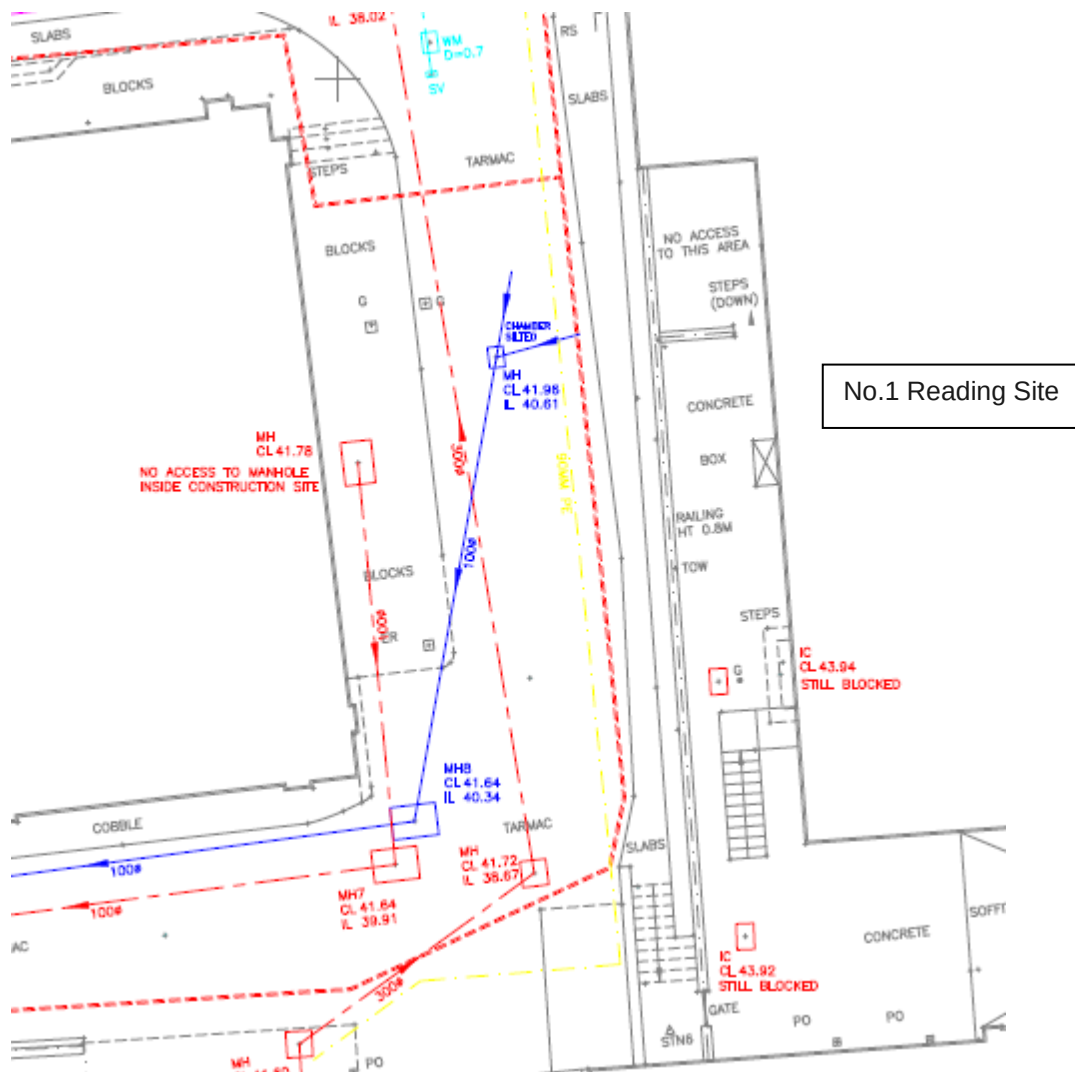


Figure 3.1: Existing Surface Water Sewer (Dark blue)

4 Foul Water Discharge

- 4.1.1 A pre-development planning enquiry for a previous development on this site was submitted by PBA and approved by Thames Water in 2015. Thames Water approved foul discharge into the existing sewer at a peak rate of 5.04 l/s.
- 4.1.2 Based on the most recent masterplan, PBA have calculated the peak foul discharge rate from the proposed development to be 4.22l/s. The calculated foul discharge rate for the proposed development is therefore less than that of the previous development which was accepted by Thames Water.
- 4.1.3 Therefore at this stage a new pre-development enquiry has not yet been submitted to Thames Water.

5 Build Over Agreement

- 5.1.1 A new build-over agreement will be required for the proposed construction works over the 300mm Thames Water Foul Sewer in the existing access road to the west of the building.
- 5.1.2 A build over application was submitted in 2016 by PBA for the same location and this confirmed by CCTV survey that the 300mm diameter sewer was in good condition.
- 5.1.3 The current proposal is for a corridor to be left between the piles in the access road which the drainage and diverted utilities will follow. Concrete beams are to be constructed linking the piles together and these will intermittently cross over the diverted sewer run at high level. The preliminary pile arrangement can be found in **Figure 5.1**.

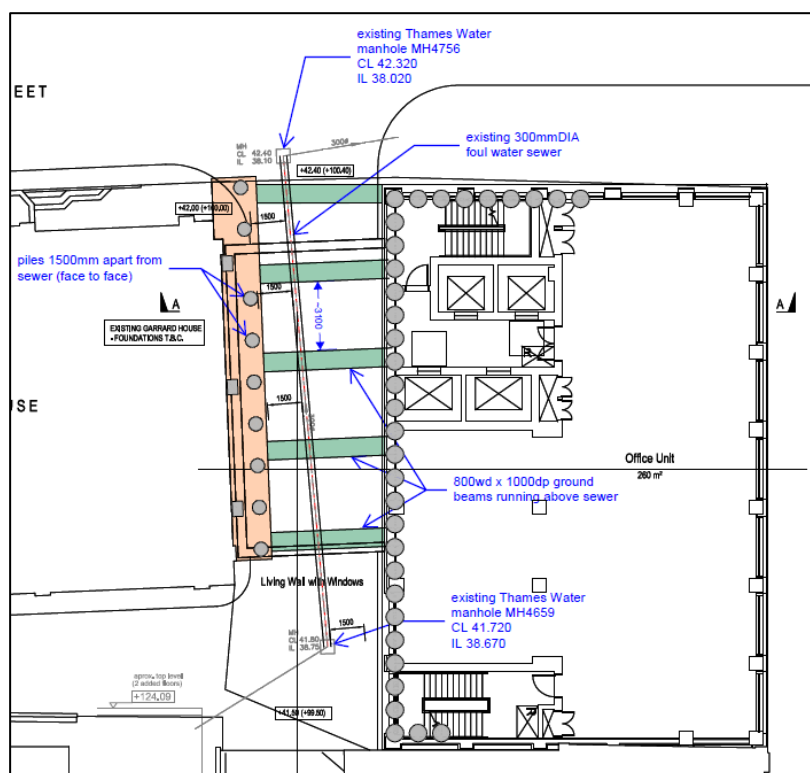


Figure 5.1: Preliminary pile layout & foul sewer – depiction of build-over easement extent

- 5.1.4 Thames Water will require a new build-over application form to be submitted along with site plans showing the proposed strategy. These include a plan showing a section through the building indicating the position of the sewer relative to the new structure and a plan showing foundation arrangements. The application fee for build-over agreement for a 300mm foul sewer is £687 (zero rated VAT).
- 5.1.5 At this stage of the design process the proposed building layout and piling details have not yet been designed to the level of detail required for the application, therefore we are unable to accurately measure the offset between the sewer and the piles.
- 5.1.6 Thames Water provided a specification with the original application which detailed when using piling foundations, the proposed foundations are to be a minimum of 1.5m from the public sewer. Only continuous flight augered piles are acceptable.

At this stage PBA recommend that additional detailed design work will be required to satisfy the requirements of a new build-over application for Thames Water.

6 Diversions

Southern Gas Networks

- 6.1.1 SGN asset records, shown in **Figure 6.1**, indicate a 90mm Polyethylene pipe located in the access road to the west of the building. The main is shown to connect properties on the access road with the gas main in Station Road.

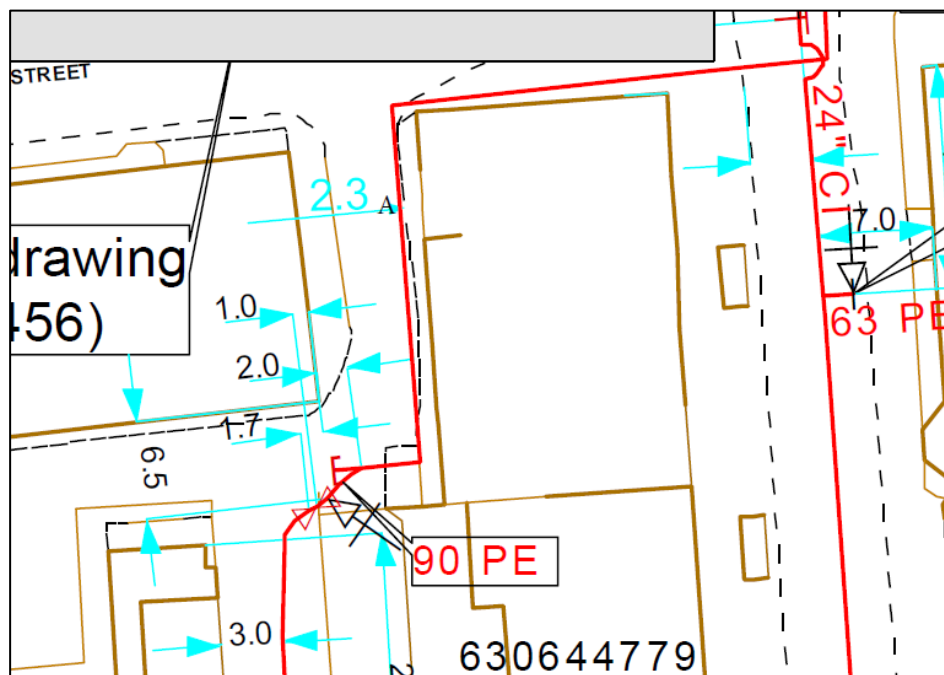


Figure 6.1: SGN asset records

- 6.1.2 Our proposal is to divert the gas main into the corridor between the piles, as described in the Build-over Agreement Section. PBA have previously undertaken preliminary discussions with SGN for this diversion. An application will need to be made to SGN to divert the gas main. Further details of the location and size of the utilities corridor are required before SGN can accept the diversion. As a result, we are unable to submit a diversion application to SGN until further details of the foundation and piling are known.

SSE

- 6.1.3 SSE asset records in **Figure 6.2** indicate 11kV and LV cable routes within the access road to the west of the building. The cable routes connect cables within Garrard Street with the Garrard Street and IBIS substations which are on the access road. As part of the diversion works cables crossing the access road will be diverted to the north, outside of the piling location. The only available route for the diversion of the cables to maintain connection to the substations is to route the cables through the piled area.

- 6.1.4 Our proposal is to divert the electricity cable routes into the corridor between the piles, as described in the Build-over Agreement Section. PBA have previously obtained a quote for a similar diversion in this location. An application will need to be made to SSE to divert the cables. Further details of the location and size of the utilities corridor are required before SSE can accept the diversion. As a result, we are unable to submit a diversion application to SSE until further details of the foundation and piling are known.

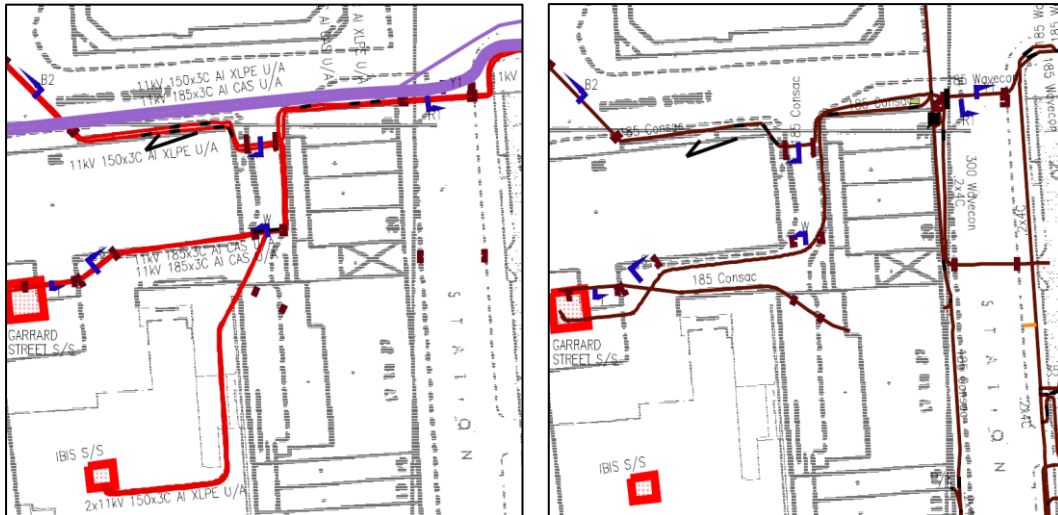


Figure 6.2: SSE asset records – High Voltage (L) & Low Voltage (R)

Thames Water – Potable Water

- 6.1.5 As part of a GPR survey carried out by Brandon Surveys in January 2016 part of a potable water pipe was recorded in the access road within the piled area of the development, see Figure 2 above (light blue pipe). This pipe is not recorded on Thames Water asset records, therefore the connection could be a service connection to a nearby property. Further investigation is required to determine whether this pipe requires diversion.

Virgin Media

- 6.1.6 Virgin Media asset records shown in **Figure 6.3** indicate cable routes on the northern and eastern sides of the building along Garrard Street and Station Road. As the proposed building frontage is in the same location as the existing building and there is no equipment within the proposed piling location it is anticipated that no diversions are required, but will need to be considered if levels are being adjusted around the northern side of the proposed building.

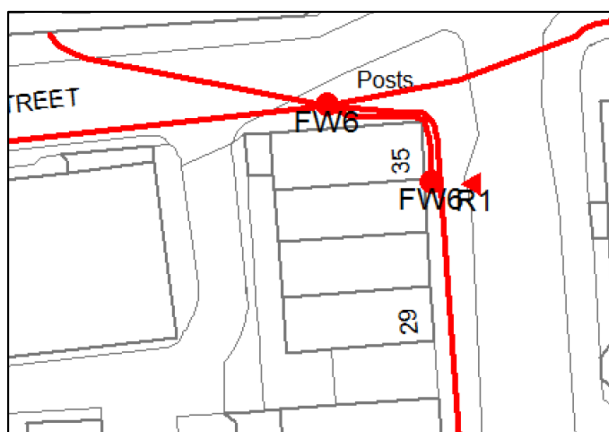


Figure 6.3: Virgin Media Asset Records

Openreach

- 6.1.7 Openreach asset records shown in **Figure 6.4** indicate ducting and joint boxes within Station Road and Garrard Street. It is anticipated that a diversion may be required for Openreach cable route in the access road to the west of the building. Further investigation will be required by Openreach to determine whether a diversion is necessary.



Figure 6.4: BT asset records

Vodafone

- 6.1.8 Vodafone asset records shown in **Figure 6.5** indicate cable routes on the northern and eastern sides of the building along Garrard Street and Station Road. As the proposed building frontage is in the same location as the existing building and there is no equipment within the proposed piling location it is anticipated that no diversions are required, but these cables will need to be considered if levels are being adjusted around the northern side of the proposed building.

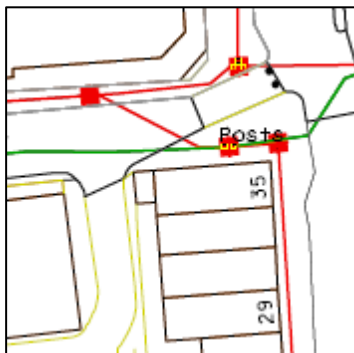


Figure 6.5: Vodafone asset records

Instalcom

- 6.1.9 Instalcom asset records shown in **Figure 6.6** indicate cable routes on the northern and eastern sides of the building along Garrard Street and Station Road. As the proposed building frontage is in the same location as the existing building and there is no equipment within the proposed piling location it is anticipated that no diversions are required, but these cables will need to be considered if levels are being adjusted around the northern side of the proposed building.

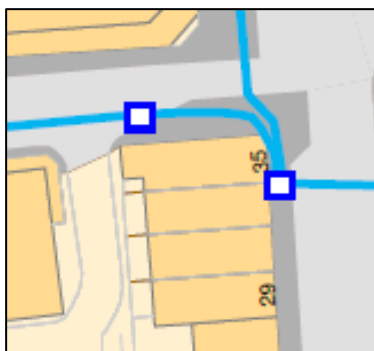


Figure 6.6: Instalcom asset records

- 6.1.10 Asset records collected for KCOM indicate that they also have infrastructure along Garrard Street, it is anticipated that a diversion will not be required for these undertakers.

7 New Connections

Southern Gas Networks

- 7.1.1 Southern Gas Networks (SGN) have provided a new connection quote based on an hourly loading of 650kW with an annual loading of 2,600,000kWh.
- 7.1.2 The work to be carried out by SGN will include a connection from the 90mm Low Pressure main located in the access road to the west of the building, as shown in **Figure 7.1**. SGN have indicated that an external meter kiosk will be required. This allows for SGN to supply and fit the kiosk and base, providing all excavation and reinstatement of the trenches. Meter or meter works are not included in the quote given above.
- 7.1.3 SGN will carry out a capacity check once the quote has been accepted. If the existing infrastructure is found to need reinforcing to accommodate the loads from the development the reinforcement costs will be met by SGN. This could cause time delays to the installation of the gas supply.

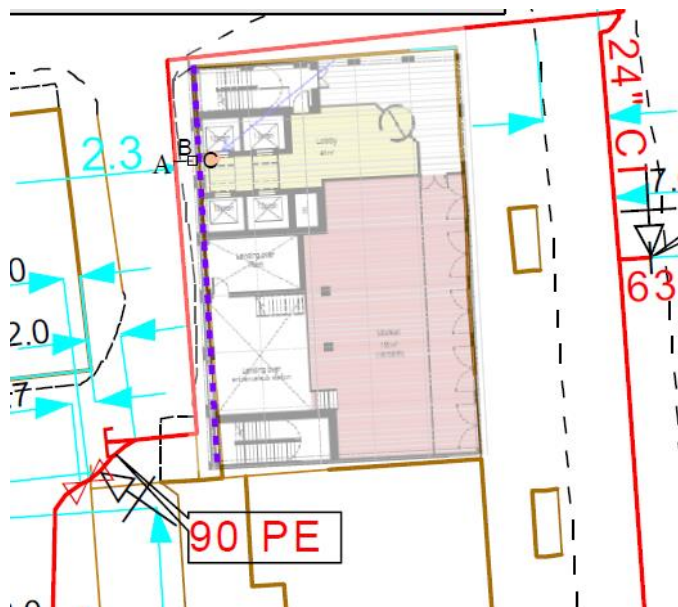


Figure 7.1: SGN new connection

- 7.1.4 A quote for the Southern Gas Networks connection to the site and related infrastructure works has been provided at a total cost of £9,694.89 (including VAT).

Thames Water

- 7.1.5 Thames Water have provided a new connection quote for a domestic connection and a dedicated fire supply. The quote is based upon the drawing set received on 25/06/2018 and a fire supply flow rate of 1.8l/s.
- 7.1.6 The necessary work will include installing the 90mm commercial metered supply and 90mm commercial dedicated fire supply as shown in **Figure 7.2**. Thames Water are responsible for the 90 mm Barrier pipe connections and pipe lay in the road.
- 7.1.7 Thames Water have confirmed that at the time of issue for the quotation there is capacity in the surrounding potable water network for the new supplies.

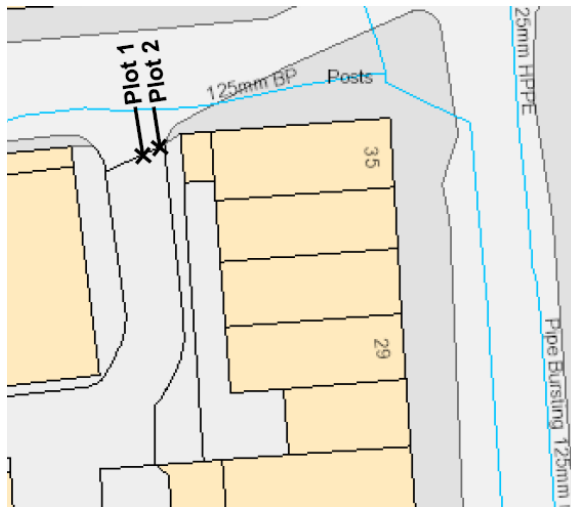


Figure 7.2: Thames Water new connections

- 7.1.8 A quote has been issued by Thames Water for a commercial metered supply and commercial dedicated fire supply of £11,592 (including VAT).

SSE

- 7.1.9 The development will require a HV connection to from the surrounding SSE network. An internal electrical substation will be located on the lower ground floor adjacent to the access road as shown in **Figure 7.3**.

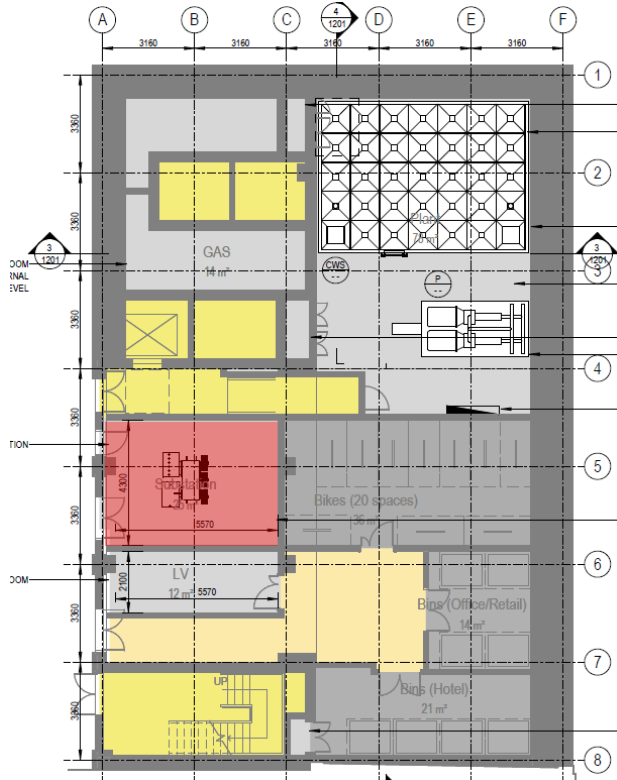


Figure 7.3: Proposed Substation Location (highlighted Red)

- 7.1.10 An application for a new electrical connection to the development has been sent to SSE, however a response has not yet been received.

8 Construction, Diversions and Temporary Works

- 8.1.1 The significant number of public utilities and the logistics associated with construction will necessitate relocation, diversions and access strategies. At this stage, this has not been fully developed as this is work reserved for the next stage when the full construction sequencing and logistics will be developed.

9 Summary

- 9.1.1 The electrical supply quotation will be added as an amendment to this report once received.
- 9.1.2 PBA recommend that a further pre-development enquiry is carried out for this development once the surface water drainage strategy is finalised.
- 9.1.3 Once further design work of the piles/foundations have been completed, PBA recommend applying for a build over agreement for the foul sewer in the access road.
- 9.1.4 Applications will be made to SGN (Gas) and SSE (Electric LV & HV) to agree diversions of their infrastructure affected by the piling/foundations.
- 9.1.5 Further investigation will be carried out to determine if Thames Water (potable water) and BT Openreach have infrastructure affected by the proposed piles/foundations once further design details have been finalised.
- 9.1.6 Diversions and temporary utility routes have not been covered in detail in this report and will be subject to additional design/logistics work following the planning application.