
Blake Clough

CONSULTING

BCC10061

Grey Friar's Road Grid Feasibility Assessment

Client: Elder Developments
(Greyfriars) Ltd



Document Control

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Contents

- Document Control..... 1
- 1. Introduction..... 3
- 2. Grid Assessment..... 4
 - 2.1. Distribution Network 5
 - 2.2. Transmission Network 6
- 3. Conclusions and Recommendations..... 8

1. Introduction

The purpose of this report is to provide an independent assessment of the electricity network surrounding Grey Friar's Road, Reading, England. This is to inform Elder Developments (Greyfriars) Ltd of the potential connection options available for a 779kVA demand connection to the parcel of land shared with Blake Clough Consulting.

The report will draw on publicly available data provided by Southern Electric Power Distribution (SEPD), the Distribution Network Operator (DNO) and National Grid Electricity Transmission, the Transmission Operator (TO), to provide an overview of the grid around the site.

This will allow Elder Developments (Greyfriars) Ltd to better understand the connection options available for this project. Recommended connection strategies for the site going forward will be included in the summary section of the report.

2. Grid Assessment

Located on the corner of Grey Friar's Road and Garrard Street in Reading, England, the site is a set of office buildings on the eastern side of the road. The figure below shows an outline of the site.

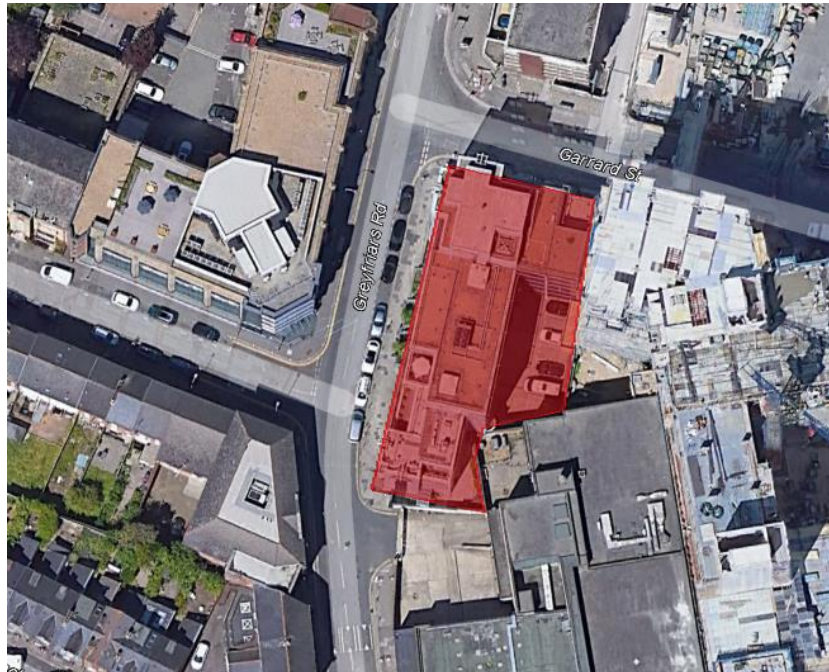


Figure 2-1: Red Line Boundary of the Site

Figure 2-2 below shows an outline of the existing grid infrastructure surrounding the site.

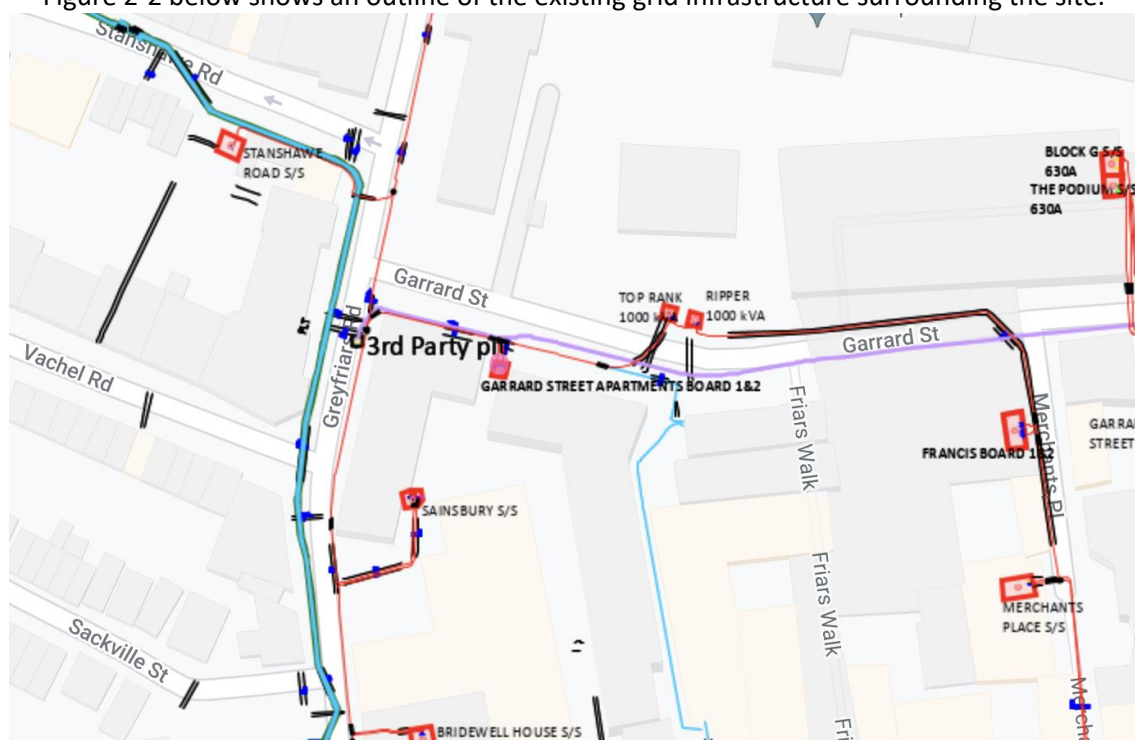


Figure 2-2: LV and 11kV Network around the site

The thicker blue line represent an 33kV circuit, the orange/red is the 11kV, the purple the 0.4kV network. Also seen are the secondary substations (11/0.4kV) and switching stations, outlined in red.

Figure 2-3 shows the wider area the local 33/11kV substations at The Mall and Reading Town shown.

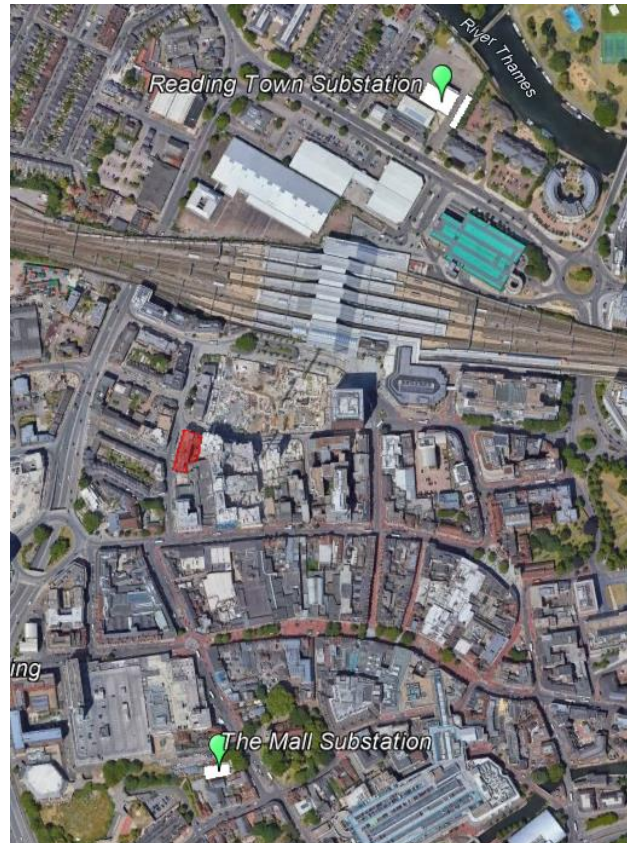


Figure 2-3: Primary Substations relevant to the Site

2.1. Distribution Network

For a demand connection of less than 1MW the 11kV network and below is the only suitable connection voltage, as such the 33kV and 132kV networks have not been assessed.

From Figure 2-2 above it can be seen that there is a 0.4kV cable running to the north of the site but as the secondary substation appears unable to provide the desired demand it is connection is expected to be offered via the 11kV circuit seen in Figure 2-2. A tee-off or loop-in/loop-out connection to this circuit would be able to provide the 779kVA of demand needed but it will require the construction of a secondary substation on the User's site.

To connect into the nearby 11kV underground cable circuit the DNO will include a Ring Main Unit (RMU) comprising of two switches and an 11kV circuit breaker. This circuit breaker would be the boundary point and metering point for the connection. Beneath this the customer would require their own 11/0.4kV Transformer although this would not be costed within the DNO's connection offer.

The 11kV circuit runs between The Mall substation and Reading Town substation. The Mall is a 33/11kV substation with two 40MVA transformers, located 0.3km south of the project site, while Reading Town has two 30MVA 33/11kV transformers, located 0.5km northeast of the site.

In examining the load forecasts in the LTDS we can see that Reading Town does not have sufficient firm capacity to offer the demand and a connection may trigger reinforcement works of this substation. As the works would be at the 33kV level Elder Developments (Greyfriars) Ltd would not be required to pay for them unless they exceeded the high cost cap (£1720/kVA) in which case they would only pay the difference. The works would, however, need to be completed before the connection could be energised. The Mall does appear to have capacity for the demand and so connection should be sought from there as it would allow the project to connect faster with no reinforcement of the substation. The table below shows the LTDS demand profiles for Reading Town and The Mall.

Substation Name	2022/2023 Demand (MVA)	Forecast 24/25 (MVA)	Forecast 25/26 (MVA)	Forecast 26/27 (MVA)	Forecast 27/28 (MVA)
Reading Town	27.9	31.0	32.1	33.2	34.6
The Mall	15.8	16.2	16.3	16.4	16.5

Figure 2-4: LTDS Load Forecast

Of note is that we found the LTDS is contradicted by SEPD's Network Scenario Headroom Report, the report shows that Reading Town does have sufficient capacity to facilitate this connection without reinforcement. We recommend that the demand headroom capacity at Reading Town and the Mall is discussed with SEPD on a pre-app call to confirm what is available and if reinforcement is likely to delay this demand connection.

The table below shows the available headroom predicted by the Network Scenario Headroom Report. The capacity shown below is the predicted firm capacity available at these substations.

Substation Name	Scenario	Forecast 2025 (MVA)	Forecast 2026 (MVA)	Forecast 2027 (MVA)	Forecast 2028 (MVA)
Reading Town	Minimum Demand Headroom	33.34	32.02	31.28	30.58
The Mall	Minimum Demand Headroom	3.32	3.10	2.83	2.51

Figure 2-5: Demand Headroom Forecast

2.2. Transmission Network

We have undertaken an assessment of the Transmission Network although as the demand is small, we do not believe it will trigger a statement of works as the DNO will be able to manage the 1MVA demand within their network.

The area is fed from the Fleet-Bramley GSP which is currently at capacity with no room for extension due to a fault level constraint. A new substation has been triggered but we believe it is still in the early stages as siting studies have not yet been completed. It is expected that new

connections will need to wait until 2037 and later for a connection. If a statement of works is required for this connection, then it would likely need to wait until 2037 before energisation. We recommend early engagement with SEPD to ensure they agree with our assessment that the connection could be facilitated without a statement of works.

3. Conclusions and Recommendations

This report has provided an assessment of the connection options available to the property on Grey Friar's Road. We believe there is sufficient capacity in the local network to facilitate the 779kVA with minimal reinforcements.

We believe that a connection to the 11kV underground cable under Grey Friar's road should be available to the site. Our expectation is that the offer made by the DNO will include a Ring Main Unit (RMU) comprising of two switches and an 11kV metering circuit breaker. The customer would then require their own 11/0.4kV Transformer although this would not be costed within the DNO's connection offer.

We recommend that Elder Developments (Greyfriars) Ltd engage in a pre-app call with SEPD to determine the available capacity at Reading Town Primary. We found that the information within the LTDS was at odds with the network scenario report with respect to the demand capacity available at Reading Townhall. As such we encourage Elder Developments (Greyfriars) Ltd to speak with SEPD to identify what capacity is available and if any reinforcements are needed to allow this demand connection.

We also recommend that the avoidance of a statement of works is raised in this call. As the project's demand is less than 1MW we expect it will be able to avoid a statement of works and that SEPD will be able to manage the demand within their network. If this is not possible then the connection may be delayed as late as 2037 or beyond, as such this is a critical point of engagement with SEPD.

To pursue this demand connection a formal application will need to be submitted to SEPD's online applications portal.

Utilities Statement

20-30 Greyfriars Road, Reading, RG1 1NS



To supplement the Utilities Statement produced by Blake Clough covering electricity connections and capacity to the proposed development, the below provides information on water, sustainable drainage, telecommunications and gas, as set out within the Council's Validation Requirements.

Water and Drainage

A Flood and SuDS Strategy has been submitted as part of the application, which demonstrates how measures to minimise surface water run-off, and details of SuDS features to be incorporated in the proposed development including permeable paving. The measures detailed within the report demonstrate that surface water runoff has been restricted to comply with the Council's requirements. In terms of foul water discharge, one new connection to the Thames Water sewer under Garrard Street is proposed.

Thames Water were consulted prior to submission and they confirmed there is sufficient capacity within the existing sewer network to deal with surface water and foul water discharge from the proposed development. A copy of the correspondence with Thames Water is included within Appendix C of the Flood and SuDS Strategy.

It is noted that comments have been received from Thames Water on 11 December, which confirms that the development would not materially affect the sewer network and raise no objection. In terms of existing water connections, Thames Water have identified that there is insufficient capacity in the existing water network, and have recommended a condition to secure confirmation that necessary water network upgrades have been implemented, or to agree a development and infrastructure phasing plan has been agreed. It is acknowledged that this is not an objection to the proposals and the comments are currently under review by our Flood consultants.

Telecommunications

Given the site's location in central Reading, and the building's existing and continuous use as an office building, it is envisaged that it is highly likely that there are existing telecommunications infrastructure and connections serving the site for phones and broadband. These connections will be retained and continue to be used by the new development.

Using Ofcom's mobile and broadband availability checker, it also shows that there is good mobile coverage for voice and data by all mobile providers, and superfast/ultrafast broadband serving properties in the immediate vicinity along Greyfriars Road and Vachel Road.

Gas

The development will be gas-free so no new gas connections are required.