

THAMES WATER UTILITIES LTD

SYSTEM MODELLING AND INSIGHT - WATER

NM1751b – Belgrove House Development

Belgrove Street, London, WC1H 8AA

Development Impact Assessment Modelling Report

(Maiden Lane FMZ)

November 2023



Company Confidential

Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 1.0	Final for Issue	R Dixon	R Dixon	R Dixon	R Tull	30/11/2023

This Modelling Study is Valid for a Period of 18 Months from the Date of Authorisation

1 Development Details

Name of Development	Belgrove House, Belgrove Street, London, WC1H 8AA
DS Reference	DS6104045
FMZ	Maiden Lane
DMA	ZMAIDL45
Property count	25,487sqm Commercial Space
Average Day Demand (ADD)	125,280 l/day
Peak Demand	3.26 l/s
Proposed Point of Connection (POC)	180mm HPPE Crestfield Street
Development Completion Year	Assumed 2024

Table 1 - Development Details

Figure 1 shows the location of the development and point of connections.

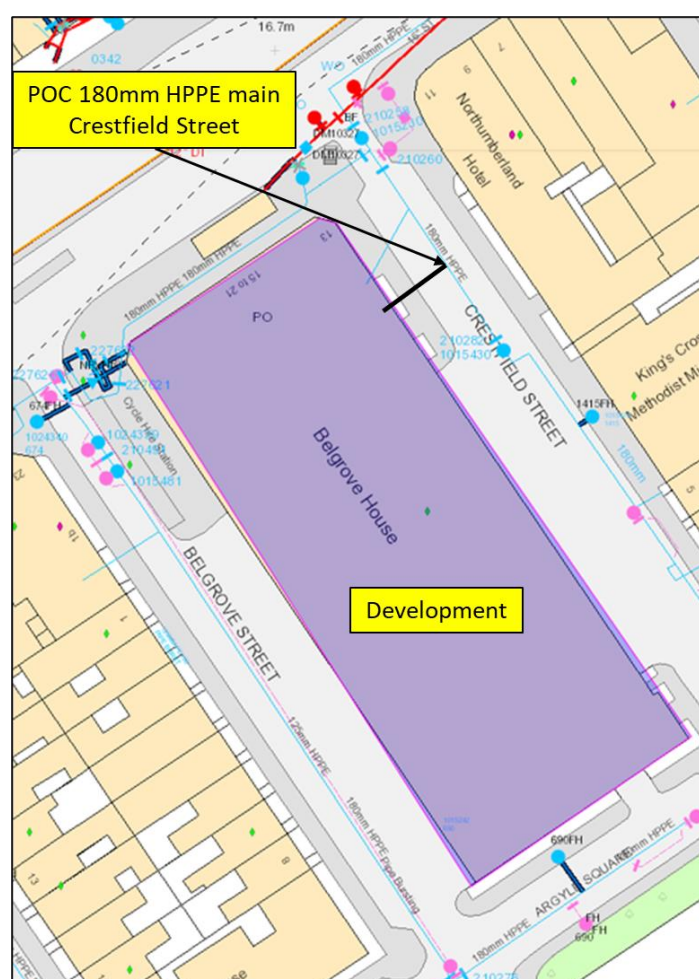


Figure 1 – Development Location Plan

2 Modelling Details

Name of model used	ZMAIDL_CAL_NOVEMBER2014_V04_PMA_v3
Model Scenario	BASE
Development Demand Profile	10HOUR, Type 3
Point of Connection (POC) Node	1725977

Table 2 - Modelling Details

3 Model Results

Table 3 shows the minimum pressure results at the POC and CP.

Figure 2 shows the minimum pressure results at the POC.

The additional demand of the Belgrove House development 3.26l/s peak demand has an impact of up to 0.5m decrease in pressure at peak hour at the point of connection on the 180mm HPPE main Crestfield Street. There is 0.4m reduction at the Critical Point (CP) on 180mm HPPE main Judd Street. There is sufficient capacity in the network to accommodate the increase demand.

This decrease in pressure is below the 1m tolerance, therefore local reinforcements are **not** required.

Monitor Location	Node ID (GISID)	Base Run Minimum Pressure (m)	Scenario Run Minimum Pressure (m)	Comparison to Base (m)
POC Crestfield Street 180mm HPPE main	1725977	35.4	34.9	-0.5
CP 180mm HPPE main Judd Street	1183366	28.0	27.6	-0.4

Table 3 - Pressure Results at POC - Peak Demand

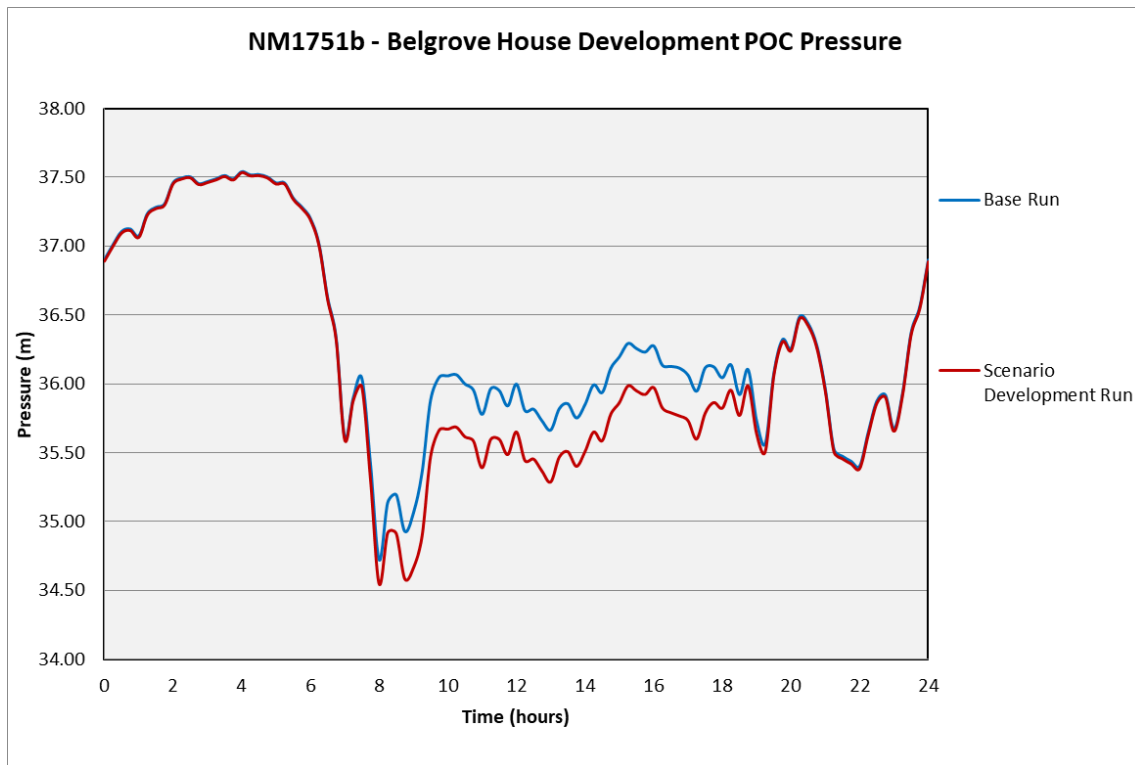


Figure 2 – Graph Pressure Results at POC - Peak Demand

4 Fire Flow

The recommended residual pressure required at a single Type 2 Squat hydrant for a fire flow of 25l/s is 15.6m (taking into account losses through the hydrant).

The model shows it is possible to meet this fire flow requirement. Table 4 below shows the results of the fire flow.

Fire Hydrant Location	GIS Ref	Fire Flow Required (l/s)	Recommended Residual Pressure Required (m)	Residual Pressure Available (m)
FH690 180mm HPPE main Argyle Square	1726464	25	15.6	25.4

Table 4 - Pressure Results – Available Fire flow

5 Conclusion

The model shows the additional demand of the Belgrove House development 3.26l/s peak demand has an impact of up to 0.5m decrease in pressure at peak hour at the point of connection on the 180mm HPPE main Crestfield Street. There is 0.4m reduction at the Critical Point (CP) on 180mm HPPE main Judd Street. There is sufficient capacity in the network to accommodate the increase in demand.

This decrease in pressure is below the 1m tolerance, therefore local reinforcements are **not** required.

The model shows that it is possible to supply a fire flow of 25l/s at a single Type 2 squat hydrant for the development.