LONDON STRUCTURES LAB

124 Theobalds Road

1632-LSL-XX-XX-RP-C-SWS

Surface and Foul Water Draiange Strategy

June 2024

DOCUMENT CONTROL

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Content

Figures and Tables

1.0 Introduction

1.1 Scope

This Surface and Foul Water Strategy report has been prepared by London Structures Lab on behalf of Theobald Investment Ltd ('the Applicant') in support of a full planning application for the refurbishment and extension of the existing commercial building at 124 Theobalds Road, London, WC1X 8RX ("the Site"). It should be read in conjunction with the other planning documents.

1.2 Sources of Information

This report has been prepared based on the following set of information:

- Existing Plans and Elevations produced by Orms Architects
- Proposal information produced by Orms Architects
- Utilities records – Thames Water record reference ALS/ALS Standard/2023_4883763 dated 13 September 2023
- Utilities records – Thames Water Sewer Flooding History Enquiry reference SFH/SFH Standard/2023_4920783, dated 05 December 2023
- Basement Survey by Digitalinc, drawing No. THR-DIG-22-0B-M2-G-90001 dated October 2023
- Basement plan showing levels of existing footings and drainage (proposed) by Alan Baxter & Associates, drawing No. 787/01/SK268, dated 1990
- CCTV survey undertaken by Clearview Surveys Ltd, Ref 14418, dated 11 December
- Environment Agency (EA) online flood maps at https://flood-map-for-planning.service.gov.uk/
- British Geological Survey (BGS) online mapping available at https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.38164836.691028685.1697751276-367169219.1697751276
- Magic website mapping available at https://magic.defra.gov.uk/magicmap.aspx
- Lead Local Flood Authority (LLFA) information – Strategic Flood Risk Assessment (SFRA), available at

https://www.camden.gov.uk/documents/20142/0/download+%2815%29.pdf/37025249-3da8-4fe1-3075-aa025d3b66de

- Lead Local Flood Authority (LLFA) information – Surface Water Management Plan, available at https://www.camden.gov.uk/documents/20142/1458280/SWMP_Halcrow_Report_for_Camden.pdf/2a8fbf03-cbd7-e808-3bb4-e75b62756b0a
- Lead Local Flood Authority (LLFA) information – Camden Planning Guidance – Water and Flooding, available at https://www.camden.gov.uk/documents/20142/4823269/Water+and+Flooding+CPG+-+March+2019.pdf/c7633c7d-2b93-cb52-ee01-717fa0416e84
- Lead Local Flood Authority (LLFA) information – Camden Local Plan, available at https://www.camden.gov.uk/documents/20142/4820180/Local+Plan.pdf/ce6e992a-91f9-3a60-720c-70290fab78a6
- Lead Local Flood Authority (LLFA) information – Camden's Local Area Requirements for Planning Applications (2018), available at https://www.camden.gov.uk/documents/20142/2247044/Local+area+requirements+for+planning+applications+July+2018.pdf/aae40604-02b3-9cec-a7d0-799b86ba1d00
- Greater London Authority - City of London Local Plan 2021, available at https://www.london.gov.uk/programmes-strategies/planning/london-plan/new-london-plan/london-plan-2021
- National Planning Policy guidance on Flood Risk and Coastal Change, UK Government, published 6 March 2014, last updated 25 August 2022, available from https://www.gov.uk/guidance/flood-risk-and-coastal-change
- The National Planning Policy Framework (NPPF) : Annex 3, Flood risk vulnerability classification – UK Government, published March 2012, , available at https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification

1.3 Limitations

This report has been prepared in accordance with the National Planning Policy Framework (NPPF) and Local Planning Policy. The proposed flood management (including ground floor level

recommendations) and surface water management strategies are based on the relevant British Standards (BS8533), the standing advice provided by the EA or based on common practice. The findings of this report are based on the information available at the time of production.

The Construction (Design and Management) Regulations 2015 (CDM Regulations) will apply to any future development of this site which involves "construction" work, as defined by the CDM Regulations. As such it is the responsibility of the proposed developer (ultimate client) to fulfil its duties under the CDM Regulations.

2.0 Site Setting

2.1 Site Description

124 Theobalds Road ('The Site') is located in the London Borough of Camden (LBC) and covers an area of 0.24 hectares. The current building was completed in 1955 and comprises a basement, ground and eight upper floors with a total floorspace of approximately 11,937 m^2. The Site fronts Theobalds Road to the south and is bounded by Boswell Street to the west and New North Street to the east. The approximate grid reference for the site is 530531E, 181798N. The planning boundary for the proposed works is shown in Figure 2.1.

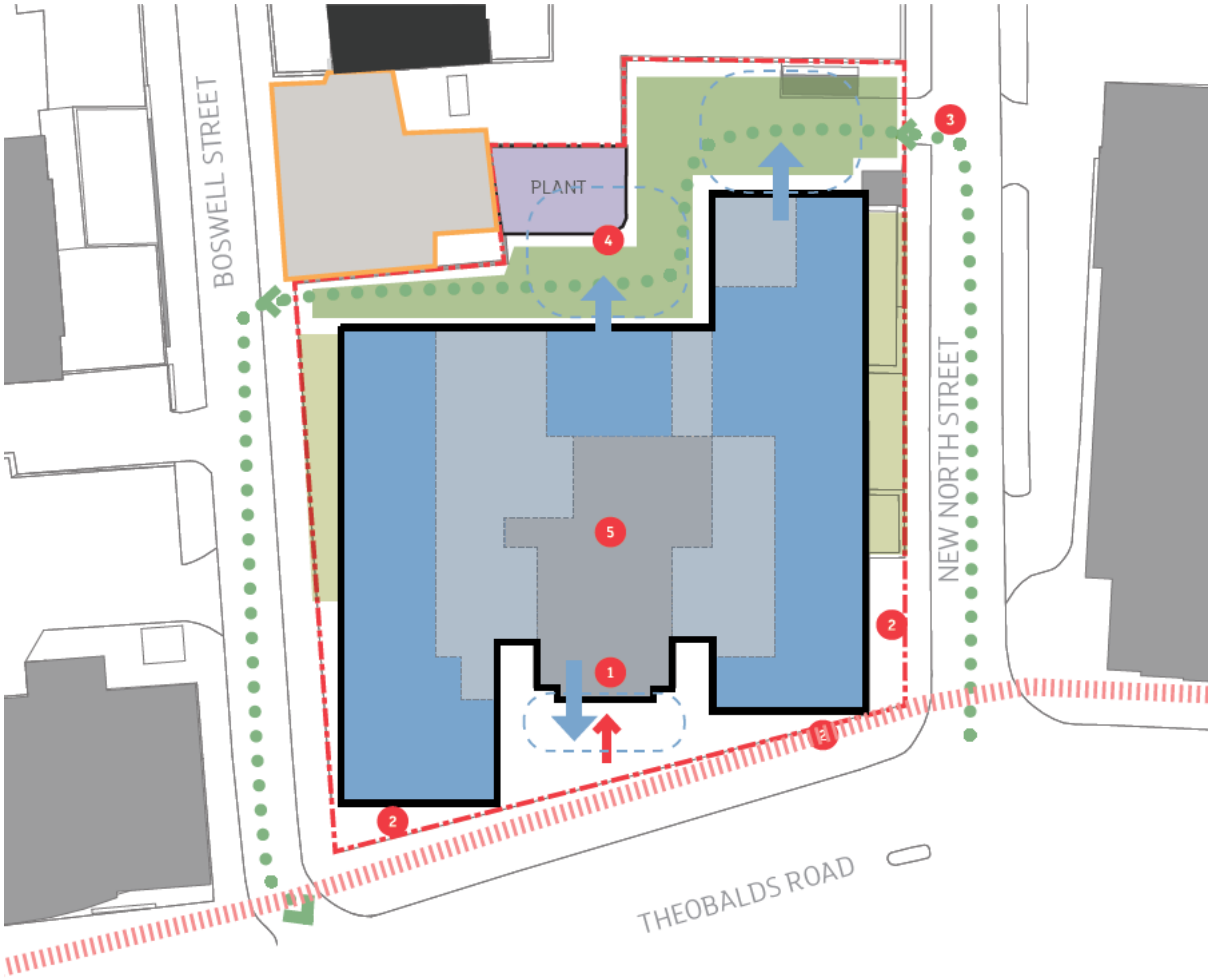

Figure 2.1 – Proposed planning boundary

2.2 Proposed Development

The proposed development comprises refurbishment and extension of the existing building to provide additional commercial, business and service use (Class E) including external alterations,

introduction of a rooftop terrace, new hard and soft landscaping, provision of cycle parking, provision of publicly accessible café space, and other associated works.

2.3 Topography

The majority of the site is occupied by the existing building footprint, with a paved parking and service yard area to the north of the building. Based on the Thames Water Utilities records, there is a slight fall south to north on the roads adjacent to the building, with a marginal fall in levels west to east. At the time of report production, a topographical survey of the surrounding road levels was not available.

2.4 Hydrology

Ordnance Survey (OS) mapping and the EA's web-based mapping indicate that the River Thames is located approximately 1.1 km to the south of the site.

2.5 Geology

Based on the information available from BGS online mapping:

- Bedrock geology description - London Clay Formation - Clay and silt. Sedimentary bedrock formed between 56 and 47.8 million years ago during the Palaeogene period.
- Superficial deposits – Lynch Hill Gravel Member - Sand and gravel. Sedimentary superficial deposit formed between 362 and 126 thousand years ago during the Quaternary period.

The nearest borehole records with similar geological profiles to the site available from this website are summarised below:

- TQ38SW210, within the southeast boundary of the site, dated 1951 - indicated uppermost 0.2 m concrete, with rubble fill between 0.2 to 0.8 m, clayey gravel between 0.8 to 1.1 m, compact sandy gravel between 1.1 to 4.1 m, soft sandy clay between 4.1 to 4.3 m, compact sandy gravel between 4.3 to 6.3 m, brown clay between 6.3 to 6.7 m and London clay below to a drilled depth of 12.4 m. The cover level of the borehole was recorded to be 25.3 m AOD, with groundwater level recorded to be 4.3 m below cover level.

- TQ38SW211, approximately 15 m west of the site, dated 1951 – indicated uppermost 0.2 m concrete, with rubble fill between 0.2 to 0.8 m, sandy clay between 0.8 to 1.1 m, sand between 1.1 to 1.7 m, sandy ballast between 1.7 to 4.5 m, brown clay between 4.5 to 4.8

m and London clay below to a drilled depth of 12.3 m. The cover level of the borehole was recorded to be 25.3 m AOD, with groundwater level recorded to be 3.7 m below cover level.

Soilscape information available from Magic Maps service indicate this area as:

- Freely draining slightly acid loamy soils and clayey soils

At the time of the report production, no detailed site investigation works has taken place.

2.6 Hydrogeology

The following hydrogeological information was obtained from the online Magic Maps service.

- Aquifer Destination (Bedrock) – Unproductive
- Aquifer Designation Map (Superficial Drift) – Secondary A
- Groundwater Vulnerability – Low

BGS borehole log reference TQ38SW210 recorded groundwater at 4.3 m below a cover level of 25.3 m AOD (groundwater at 21 m AOD). Borehole log TQ38SW211 recorded groundwater at 3.7 m below a cover level of 25.3 m AOD (groundwater at 21.6 m AOD).

2.7 Summary of Flood Risk

Table 2.1 provides a summary of flood risk for the site.

Table 2.1 – Summary of Sources of Flood Risk

Source of Flooding	Risk Level	Source of Data	Comments, Mitigation Requirements
Fluvial	Low	EA mapping	Flood zone 1
Tidal	Low	EA mapping	Inland location
Surface water (Pluvial)	Low	EA mapping	EA surface water flood mapping indicated a minor patch of localised low-level flooding along New North Street adjacent to the north east corner of the site. A localised patch of low-level surface water flooding was also indicated adjacent to the building property to the north of the site. However, surface water flooding was not indicated within the site boundary.

Source of Flooding	Risk Level	Source of Data	Comments, Mitigation Requirements
Groundwater	high	BGS mapping	Appraisal of BGS borehole logs from the closest available records to the site informed that ground water was encountered at 4.3 m below a cover level of 25.3 m AOD (groundwater at 21 m AOD). Other nearby BGS borehole logs with similar geological profiles to the site recorded groundwater encountered between 3.7 to 4.0 m below ground at approximately 21.6 and 20.7 m AOD respectively. The Basement survey by Digitalinc recorded a floor level of 20.75 m AOD within the boiler room, which is lower than some of the historic recorded groundwater levels. Hence, the risk of groundwater flooding is considered high at this stage in the absence any further investigations. It is understood that site investigation works are due to take place in the coming months and the groundwater flood risk and any requirements for mitigation will be reviewed when the findings of these investigations become available. It is currently assumed that a waterproofing strategy developed with specialist input will mitigate the risk level to an acceptable level.
Sewers	Low	Thames Water records	According to Thames Water records, no sewer overloading events were recorded locally to the site postcode within past 10-year records. Therefore, the risk of sewer flooding to the site is considered to be low.
Reservoirs, Canals	Low	EA mapping	Site not affected

Key	Description
	Low/Negligible Risk – No noticeable impact to site and not considered to be a constraint to development.
	Medium Risk – Issue requires consideration but not a significant constraint to development

	High Risk – Major constraint to development requiring active consideration in mitigation proposals

3.0 Drainage Strategy

3.1 Existing Drainage

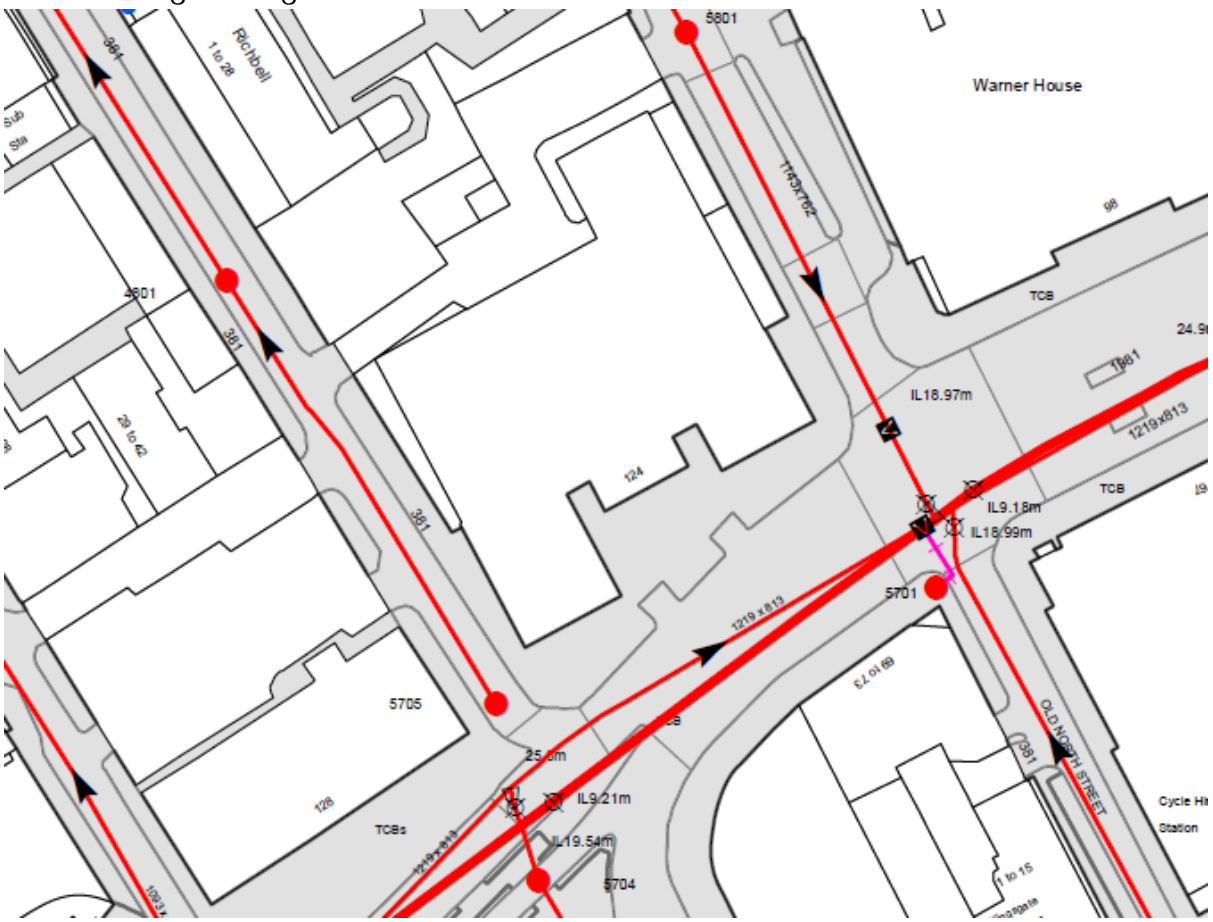

Figure 3.1 – Thames Water asset record reference ALS/ALS Standard/2023_4883763, dated September 2023

Thames Water asset record reference ALS/ALS Standard/2023_4883763, dated September 2023 indicated a combined sewer and deeper combined trunk sewer running west to east along Theobalds Road. Combined sewers also flank the building to the east and west along New North Street and Boswell Street respectively. The combined sewer in New North Steet runs north to south and connects to the combined sewer running along Theobalds Road. The combined sewer in Boswell Street runs south to north away from Theobalds Road.

Manhole access near to the building includes MH5705, located in Boswell Street close to the Junction with Theobalds Road; this MH is located at the end of the combined sewer running south to north along Boswell Street. Further along the same run, MH4801 is located approximately 15 m beyond the northwest corner of the building.

Manhole access near to the building is also indicated on New North Street, with MH5801 located closely adjacent to the service yard entrance.

Thames Water manholes within close proximity to the building are summarised in Table 3.1.

Table 3.1 – Existing Thames Water Manholes

Thames Water MH Ref	Location	Cover Level (m AOD)	Invert Level (m AOD)
4801	Boswell Street	24.78	20.24
5705	Boswell Street	25.25	20.5
5801	New North Street	24.86	19.32
5701	Theobalds Road	Not provided	Not provided
5704	Theobalds Road	25.56	19.62

A desk-based review of an existing and proposed basement drainage record drawing produced by Alan Baxter & Associates, dated 1990, indicated an existing manhole within the southwest corner of the building, which was indicated to discharge towards Theobalds Road. Furthermore, a drainage network comprising 3 No. manholes was indicated in front of the building's southern frontage to Theobalds Road, with the outfall indicated towards the southeast corner of the building discharging towards Theobalds Road (the drawing does not indicate this network as existing). In addition, an existing manhole was indicated within the northeast corner of the building, which was indicated to discharge towards New North Street. An extract of the drawing is reproduced in Figure 3.2.

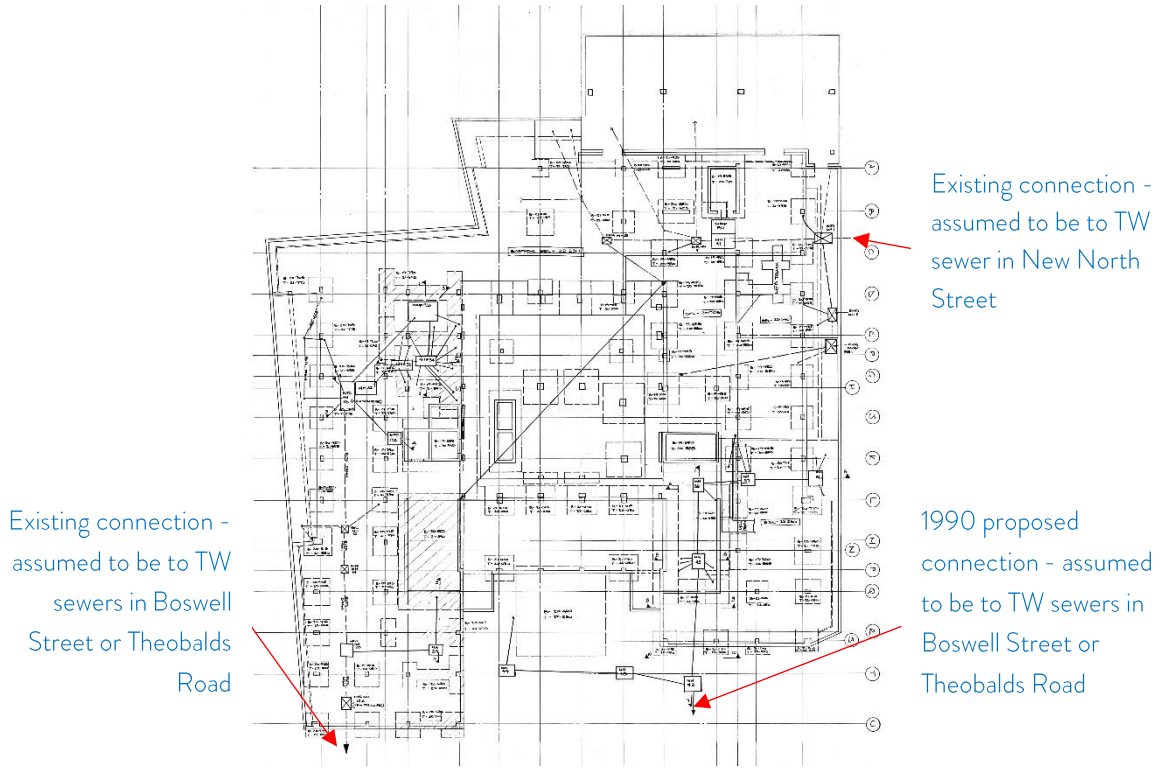

Figure 3.2 – Existing and proposed basement drainage record, Alan Baxter & Associates dated 1990

A CCTV survey of the drainage was undertaken by Clearview Survey Limited in December 2023. Although it identified three main networks within the building, broadly similar to the information presented in the Alan Baxter drawing, it did not establish the outfalls for two of the networks. There are up to three pumps serving the building and it is assumed that these will need to be maintained. The breakdown storage associated with these pumps are to be agreed with Building Control as required. A copy of the CCTV drawing is included in Appendix A. Refer to the CCTV report for further information on the drainage runs.

3.2 Surface Water Drainage Strategy

As the development is a refurbishment scheme, the surface water strategy has taken into account the need to utilise the existing drainage arrangements as far as practicable.

3.2.1 Contributing Areas

The tables below provide a comparison between the existing and proposed impermeable areas associated with the works. The full area within the redline boundary is 0.24 ha. However, the main change to the building is on the 9th floor area which is approximately 0.082 ha. Both areas are summarised in the Figure 3.2 and Figure 3.3.

Table 3.2 – Contributing areas for the whole site

Parameter	Existing (ha)	Existing (%)	Proposed (ha)	Proposed (%)
Impermeable area	0.24	100%	0.24	100%
Permeable area	0	0%	0	0%
Total Development area	0.24	100%	0.24	100%

Table 3.3 – Contributing areas for the 9th floor only

Parameter	Existing (ha)	Existing (%)	Proposed (ha)	Proposed (%)
Impermeable area	0.082	100%	0.082	100%
Permeable area	0	0%	0	0%
Total Development area	0.082	100%	0.082	100%

3.2.2 Post-development Situation

There is no change to the existing impermeable area as a result of the proposed development works on site. The existing drainage network serving the site and the existing connections to the Thames Water network will be utilised to accommodate the proposed works. The details of the surface water drainage network within the site boundary will be developed at the next design stage when the MEP design for the refurbishment works is completed.

Although there is no planning policy requirement for surface water discharge reduction from a minor development, blue roofs are currently considered for three terrace areas as shown in Figure 3.3. The design of the blue roofs will be further refined with input from a specialist manufacturer at the detailed design stage. These will offer flow reduction for the overall surface water discharge from the site.

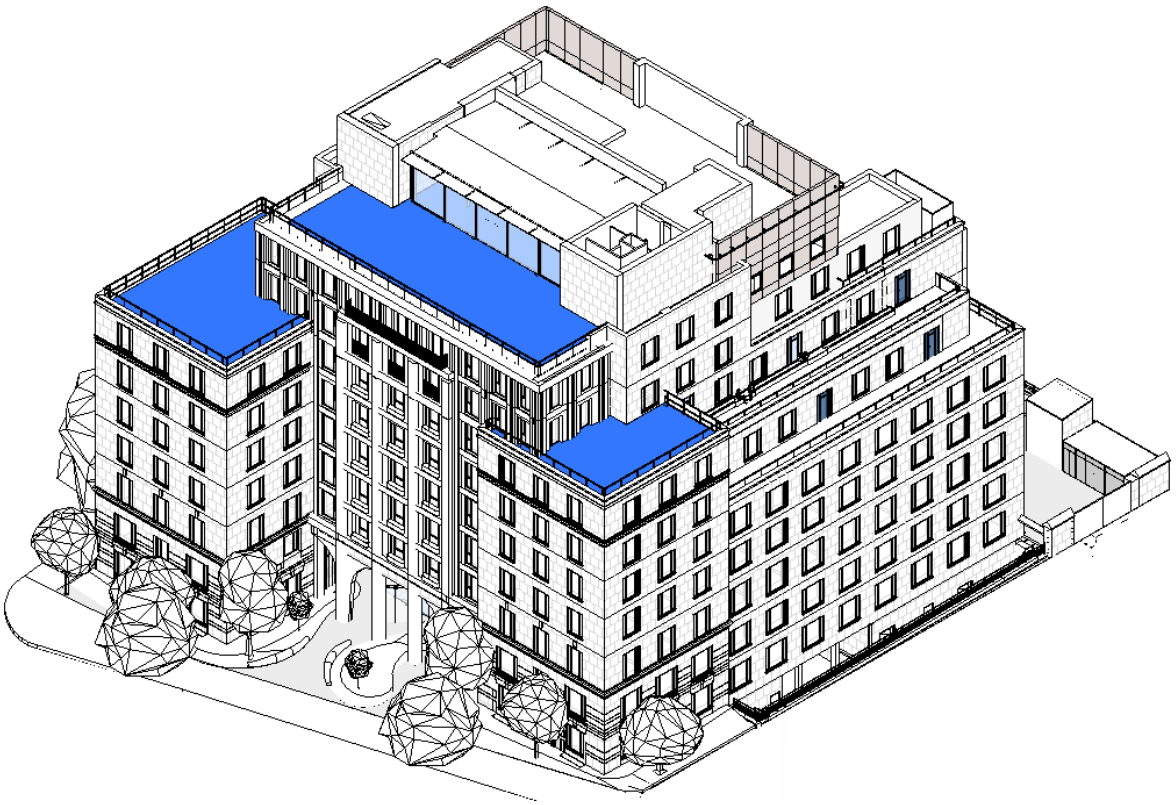

Figure 3.3 – Proposed locations of blue roofs

3.3 Foul Water Drainage Strategy

3.3.1 Existing Arrangements

There are existing combined water connections from the site to the Thames Water combined sewers as identified in Section 3.1.

3.3.2 Proposed Arrangement

It is proposed that any new SVPs are connected to the Thames Water sewer via the existing connections. It is assumed that the existing gravity and pumped systems can be reused. The new foul water connections for the SVPs within the site boundary will be developed when the MEP design for the scheme is completed at the next design stage.

4.0 Conclusion

London Structures Lab was commissioned by Theobald Investment Ltd to develop the drainage strategy to support the planning application for the proposed development at 124 Theobalds Road, London WC1X 8RX. The existing site is 0.24 ha in area and 100 % impermeable. There is no change in impermeable area as a result of the development.

The site has been identified to be at a low risk of flooding from fluvial and pluvial flooding as well as from tidal, sewers, reservoirs and artificial sources, with a high risk identified for groundwater flooding. It is currently assumed that a waterproofing strategy developed with specialist input, which will be informed by proposed site investigation works, will mitigate the risk level to an acceptable level.

It is proposed that all the existing surface and foul water drainage arrangements are utilised as far as possible. There are existing gravity and pumped connections from the site to the Thames Water sewer in New North Street and Boswell Street/Theobald Road and these are considered suitable to serve the development.

Based on the above, it is considered that the site can be refurbished without increasing the flood risk on site or elsewhere. Furthermore, that the development works can utilise the existing onsite drainage arrangements without substantial modification or any changes to the existing Thames Water connections.