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# 49 Lancaster Grove London, NW3

## Flood Risk Assessment and Drainage Strategy Report

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### Appendix A Proposed Drainage Strategy

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<b>Acronyms</b>	
AOD	Above Ordnance Datum
CIRIA	Construction Industry Research and Information Association
DCG	Design and Construction Guidance
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
FRA	Flood Risk Assessment
LLFA	Lead Local Flood Authority
NPPF	National Planning Policy Framework
PPG	Planning Practice Guidance
SFRA	Strategic Flood Risk Assessment
SWMP	Surface Water Management Plan

# 1 Introduction

Price & Myers have been commissioned to undertake a Flood Risk Assessment (FRA) for the proposed development at 49 Lancaster Grove, in the London Borough of Camden.

The National Planning Policy Framework (NPPF) states that an appropriate FRA will be required for all development proposals of 1 ha or greater in Flood Zone 1 and for any development within Flood Zones 2 or 3.

The EA's Flood Map for Planning shows that the site is in Flood Zone 1, however the Local Authority has identified the area as a Critical Drainage Area and the proposals include a new basement. This assessment will therefore focus on the flood risk to the basement from overland flows and groundwater.

This report will also outline the proposed drainage strategy for the site.

## 1.1 Relevant Policy

This FRA has been carried out in accordance with the NPPF and the accompanying Planning Practice Guidance (PPG) "Flood Risk and Coastal Change". This FRA also incorporates advice and guidance from the Environment Agency (EA), the London Borough of Camden's Strategic Flood Risk Assessment (SFRA) (January 2024) and CIRIA documents.

## 2 Site Description and Location

The site is located on the north side of Lancaster Grove, roughly midway between Lancaster Drive and Lambolle Place. See Appendix A.

A private driveway extending the full width of the site separates the detached house from the public footpath. There is approximately a 1.2m clearance between the east and west elevations and the neighbouring buildings.

The building appears to be of traditional load-bearing masonry with timber joisted floors. The building is of three storeys plus partial basement that occupies roughly 18% of the area of the ground floor.

There is a modern single storey rear extension on the northeast corner of the house.

The eastern elevation is set back from the boundary, providing private access to a large rear garden.

The site generally has a modest slope, falling north to south, becoming steeper across the front driveway, where there is roughly a 500mm level difference between the external ground levels adjacent to the front of the house and public footpath.

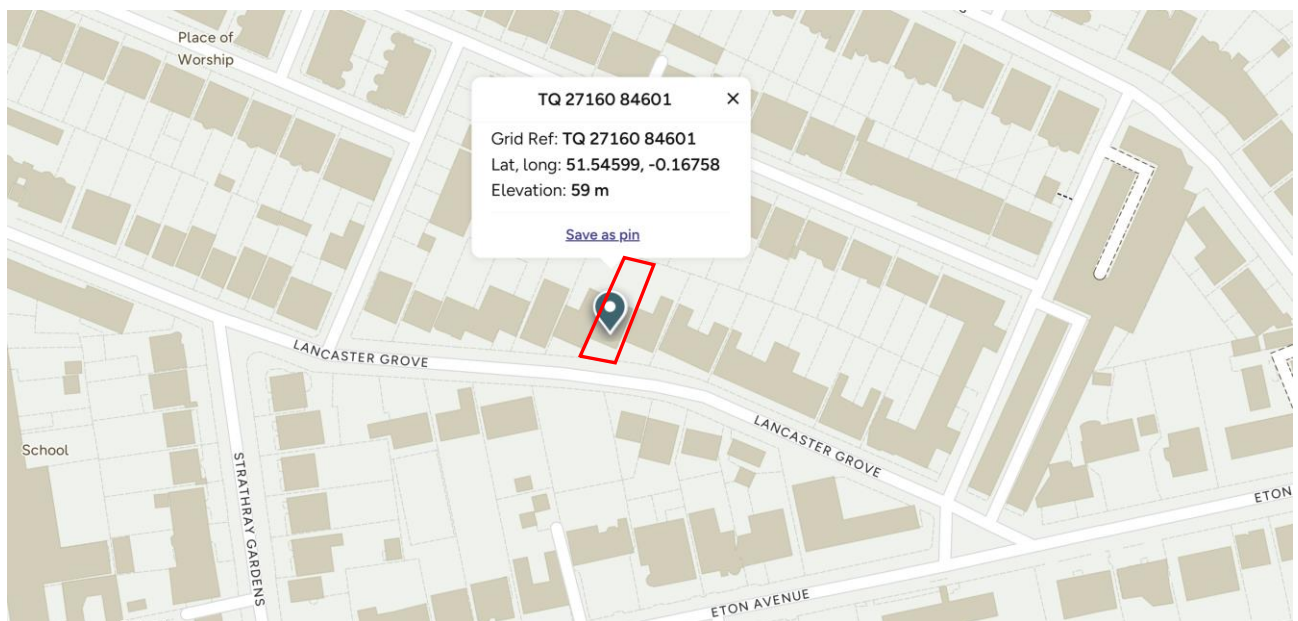


Figure 2.1 – Site Location Map

### 2.1 Existing Drainage

Both the existing foul and surface water drain to the existing public sewer that flows east to west beneath Lancaster Grove. The private drainage routes under the external passageway to the east of the site.

The Thames Water Asset maps describe the public sewer as combined foul and surface, and 965x610mm in size.

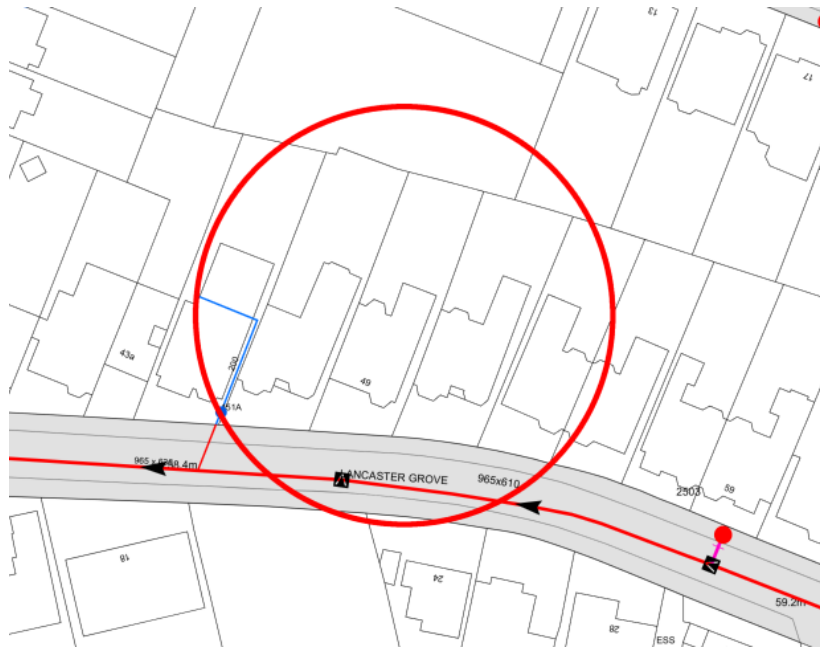


Figure 2.2 – Thames Water asset map extract;

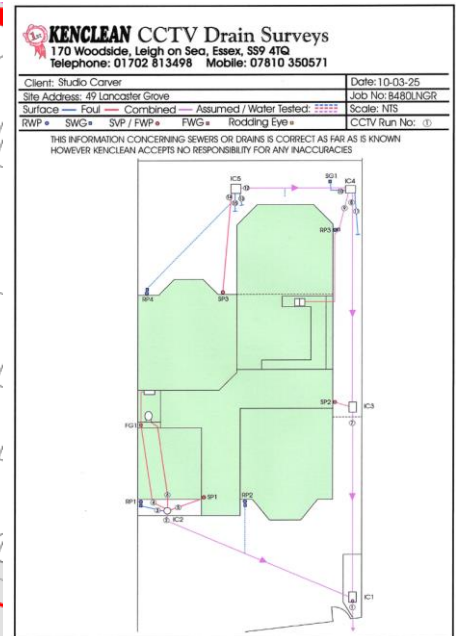


Figure 2.3: CCTV Survey

### 3 Development Proposal

The proposals include refurbishments and a basement extension at 49 Lancaster Grove. The building is currently a private home and will remain a private home following the proposals.

The existing basement occupies roughly 18% of the area of the ground floor footprint, with a floor to ceiling height of approximately 2.3m. It is proposed to extend the area of the basement to an area roughly equivalent to 80% of that of the ground floor and achieve a floor to ceiling height of roughly 2.7m throughout.

An existing lightwell to the east elevation will be made redundant, and a new lightwell will be constructed to the front bay window on the southeast corner of the building.

In addition to the basement works it is proposed to carry out refurbishment works to the upper floor levels.

# 4 Flood Risk Assessment

## 4.1 Flood Risk from Watercourses and Tidal Flooding

The EA’s flood map for planning shows that the site is located in Flood Zone 1 and is not at risk of flooding. Developments in this flood zone do not have any restrictions, provided they do not increase the risk of flooding elsewhere. The site is not within a floodplain or flood warning area.

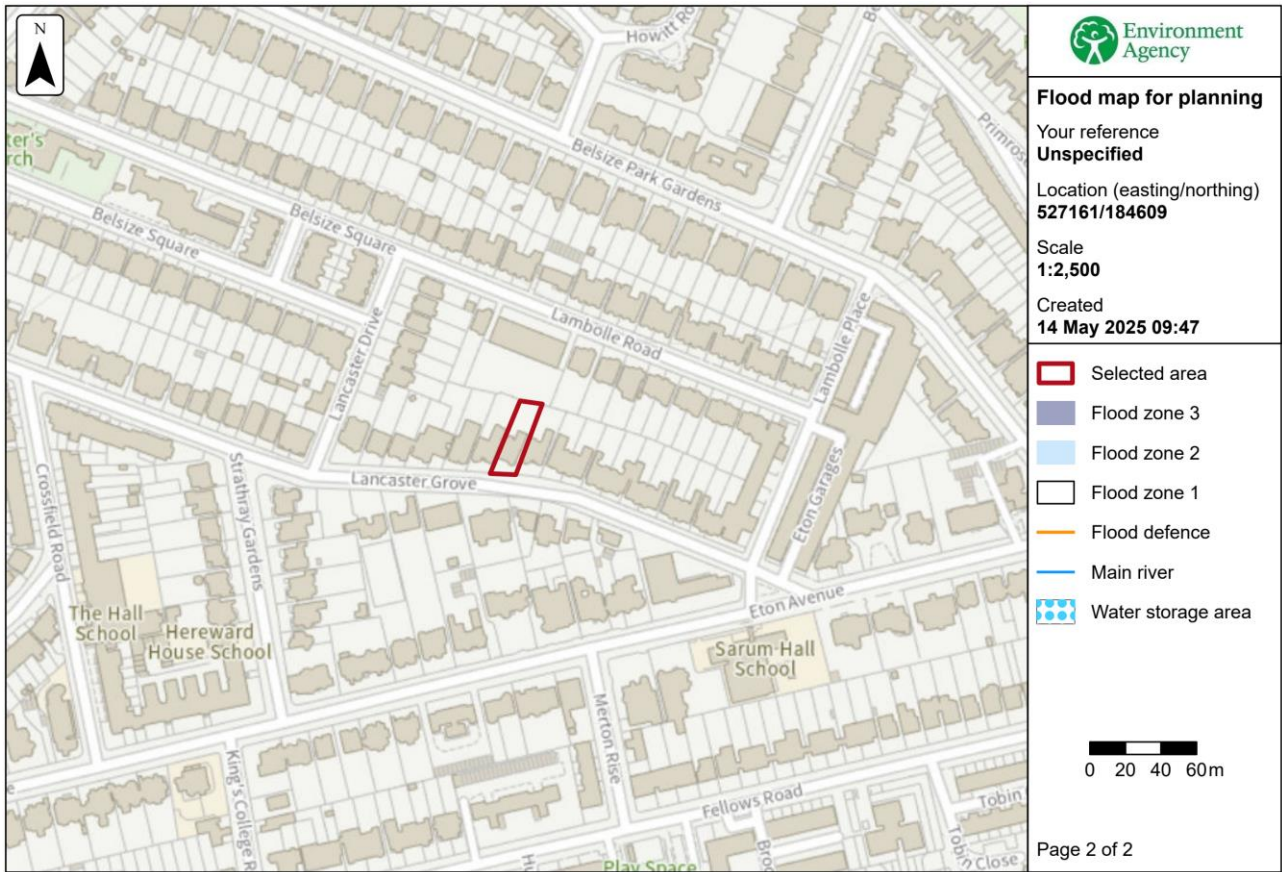


Figure 4.1 – Flood Map for Planning: Flood Zone (Rivers & Seas)

## 4.2 Flood Risk from Groundwater

Groundwater flooding occurs when water originating from sub-surface permeable strata emerges from the ground, typically after prolonged rainfall. Camden’s SFRA does not show and historic groundwater flooding records in the vicinity of the site, including recorded Environment Agency ground water flood incidents. It is also not shown as an area with increased susceptibility to elevated groundwater, Figure 4.2.

A ground investigation completed by Card Geotechnics Ltd. (May 2025) notes that any groundwater encountered is anticipated to be localised and perched, with limited quantity and recharge. Although unlikely, measures are proposed to mitigate any potential flood risk from groundwater.



The proposed basement will be designed with two forms of waterproofing protection. It is assumed the first line of defence will be provided by forming the reinforced concrete structure using a water-resisting additive or applying an internal waterproofing slurry. The second line of defence will be provided by a drained cavity system, which will collect and manage any residual seepages by discharging off-site.

The low risk of groundwater means seepages into the drained cavity are expected to be negligible, and therefore the overland flood risk from groundwater is considered low.

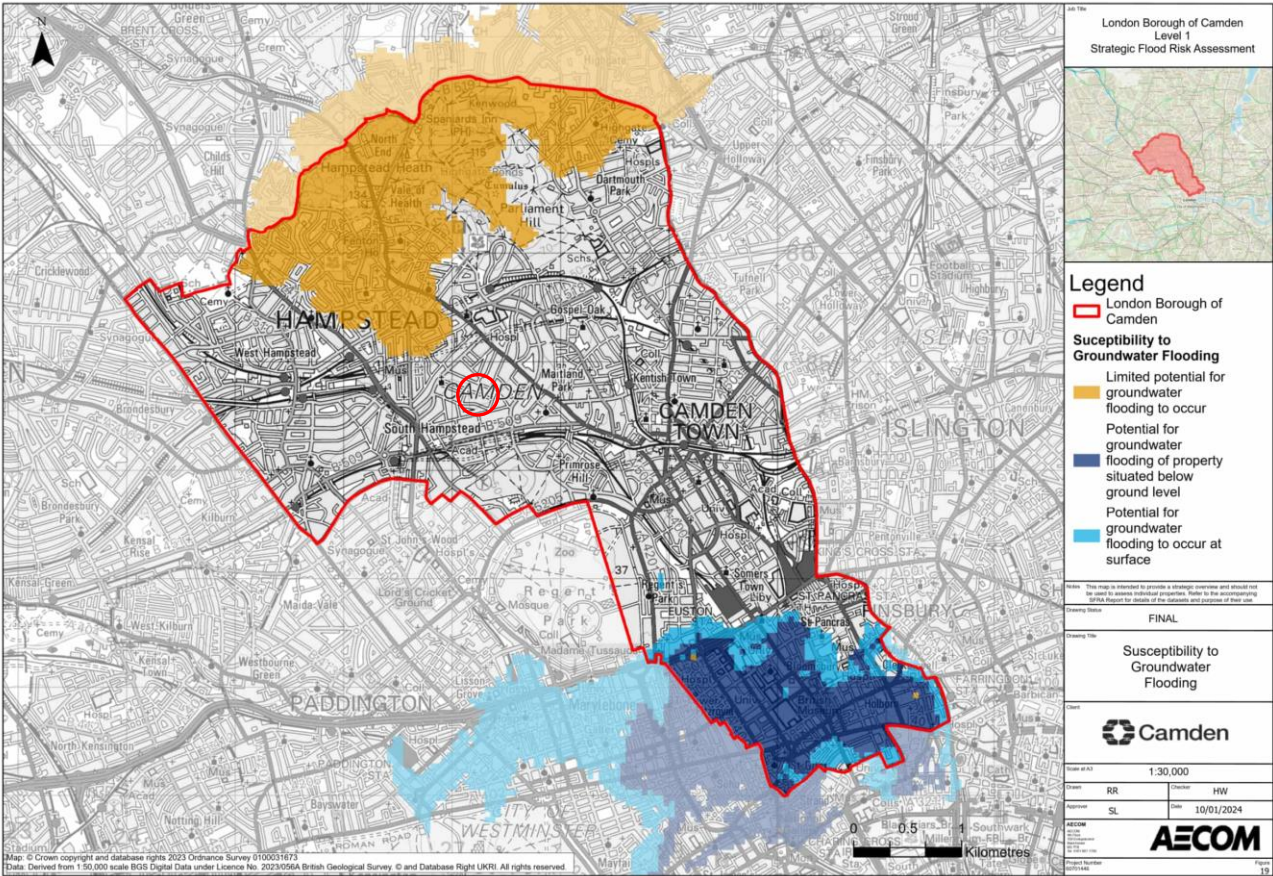


Figure 4.2 – Camden SFRA Susceptibility to Groundwater Flooding

### 4.3 Flood Risk from Surface Water and Overland Flows

Surface water flooding occurs when intense rainfall is unable to soak into the ground or enter a drainage system due to blockages or the capacity of the system being exceeded. Overland flows can also be generated by burst water mains, failed dams and any failure in a system storing or transferring water.

The EA’s indicative Surface Water Flooding Maps shows that the site is at very low risk of surface water flooding. Camden’s SFRA also shows the site to be at very low risk of flooding from surface water (<1 in 1000 year probability). There are no historical London Borough of Camden records of properties along Lancaster Grove being affected by flooding.



Figure 4.3 – Flood Map for Planning: Annual likelihood of surface water flooding

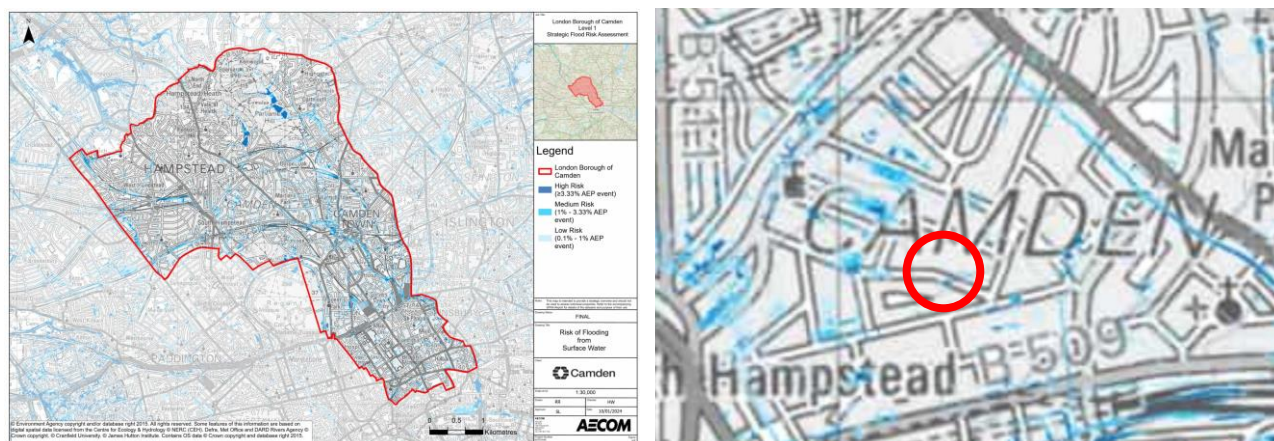


Figure 4.4 – Camden SFRA: Risk of Flooding from Surface Water

The modelling also shows no flow paths near the site which could potentially route surface water flows into the site.

#### 4.4 Flood Risk from Reservoirs

The EA provides information on flood risk from reservoirs. The map showing the maximum extent of flooding from reservoirs was updated in 2021 and now shows the combined effects of flooding from reservoirs and rivers. The site is not at risk of reservoir flooding when river levels are normal or when there is also flooding from rivers. Similarly, Camden's SFRA does not show the site at risk of flooding in either the Wet Day Scenario or Dry Day Scenario.



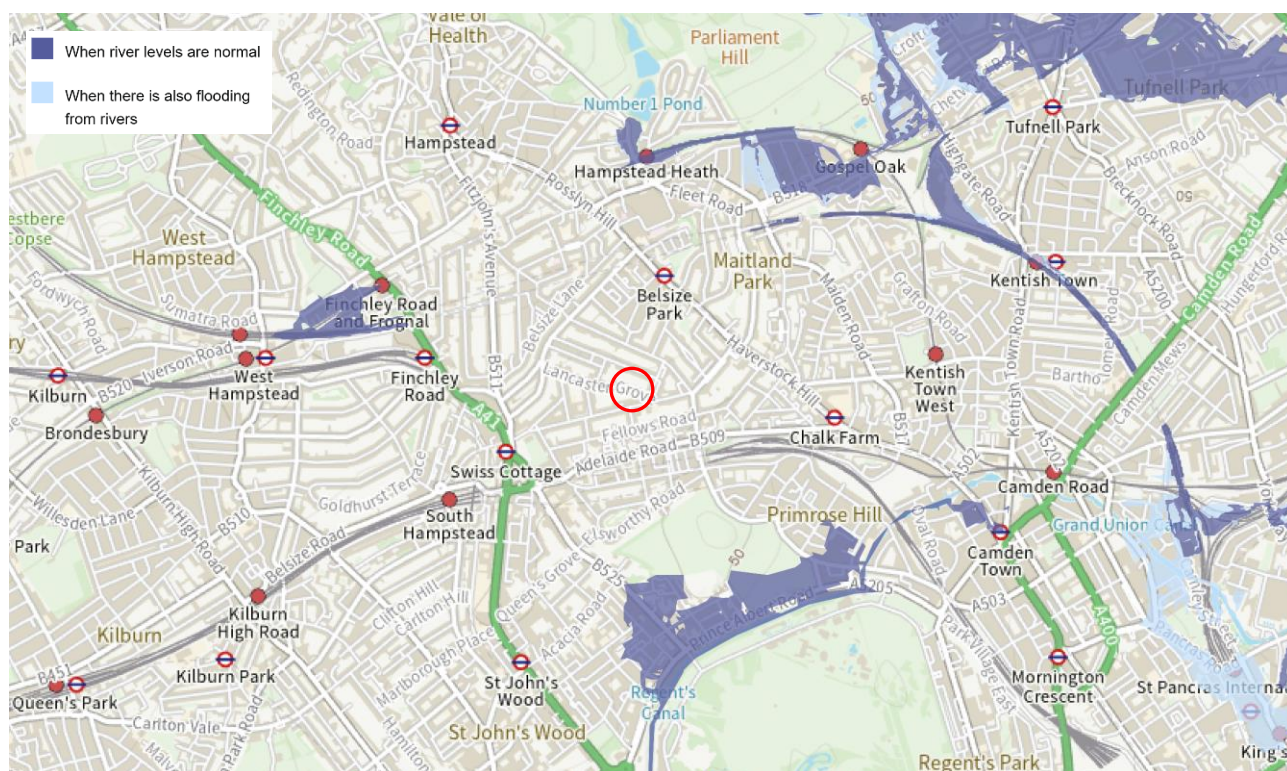


Figure 4.5 – Environment Agency Flood Map: Risk of flooding from Reservoirs

The EA's information states that reservoir flooding is extremely unlikely to happen and there has been no loss of life in the UK from reservoir flooding since 1925. The Reservoir Act of 1975 ensures that reservoirs are inspected regularly, and essential safety work is carried out.

#### 4.5 Flood Risk from Sewers

Sewer flooding occurs when the flow entering the sewerage network is greater than the capacity of the sewers. Camden's SFRA suggests there were 21-40 sewer incidents in the period 2013-2023 affecting the local area. The SFRA does not define the nature of these sewer incidents, and whether they resulted in internal or external sewer flooding.

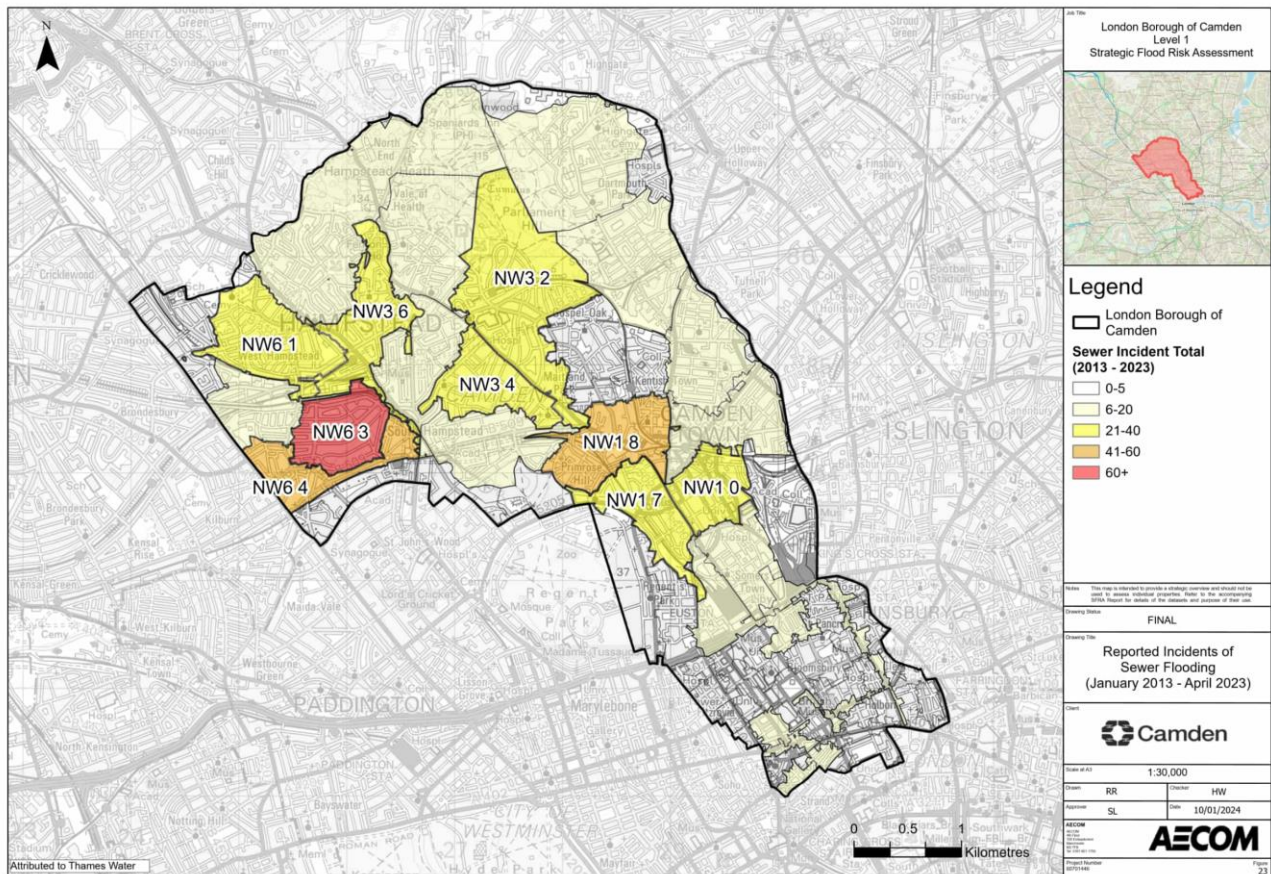


Figure 4.6 – Camden SFRA: Reported Incidents of Sewer Flooding Jan 2013-April 2023

The SFRA also shows Lancaster Grove as a flooded street in 1975 and 2012 with the Camden Local Plan also highlighting a flood event in 2021. Both these 1975 and 2012 incidents were a result of intense rainfall, which exceeded the capacity of the sewers. The SFRA does not define the nature of extent of the flooding encountered to Lancaster Grove, or whether this was localised or wholesale.

However, a Section 19 Report was compiled in 2022 and investigated the flood events around Belsize Park as a result of the 2021 flood event. This report found no internal flooding, as a result of the 2021 event, was recorded by either Camden Borough Council or Thames Water on Lancaster Grove.

The report found that sewer surcharging was recorded on Ornan Road which is located 1km to the north of the site but none on Lancaster Grove. This Section 19 Report produced a visual representation of the flood mechanisms affecting the area and is shown in Figure 4.7. It is noted that the development site is outside the influence of these flood mechanisms and not impacted. There are no records of historical flooding on site.



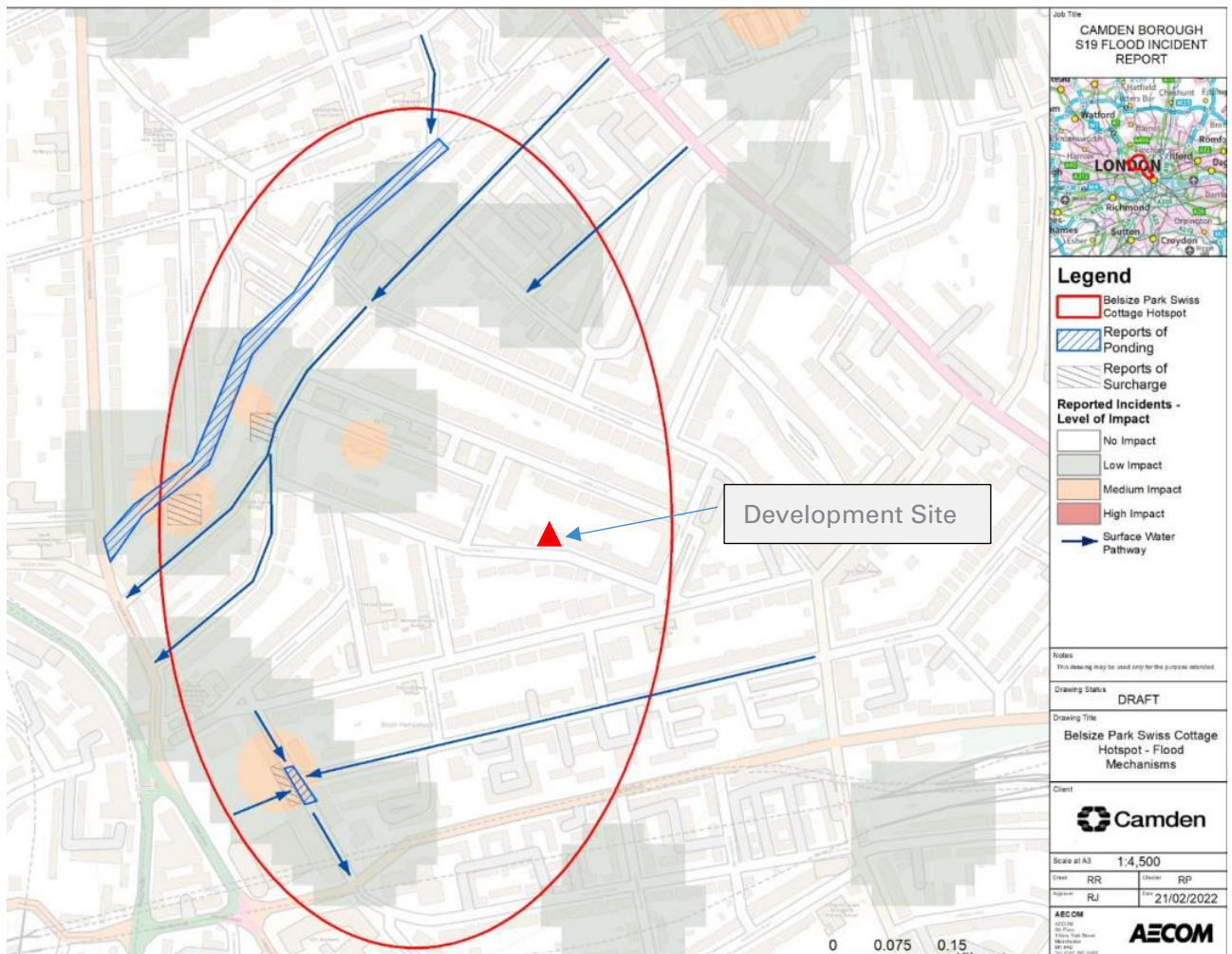


Figure 4.7 - Extract from Section 19 Flood Report showing flood mechanism in Belsize area.

A topographical survey of the development site was also carried out in February 2025 and shows the existing ground floor level at +9.98m. The front of the site slopes down to the boundary with Lancaster Grove with the highway level here being +9.34m as per Figure 4.8. Note: These levels are relative to an arbitrary survey datum and not ordnance datum.

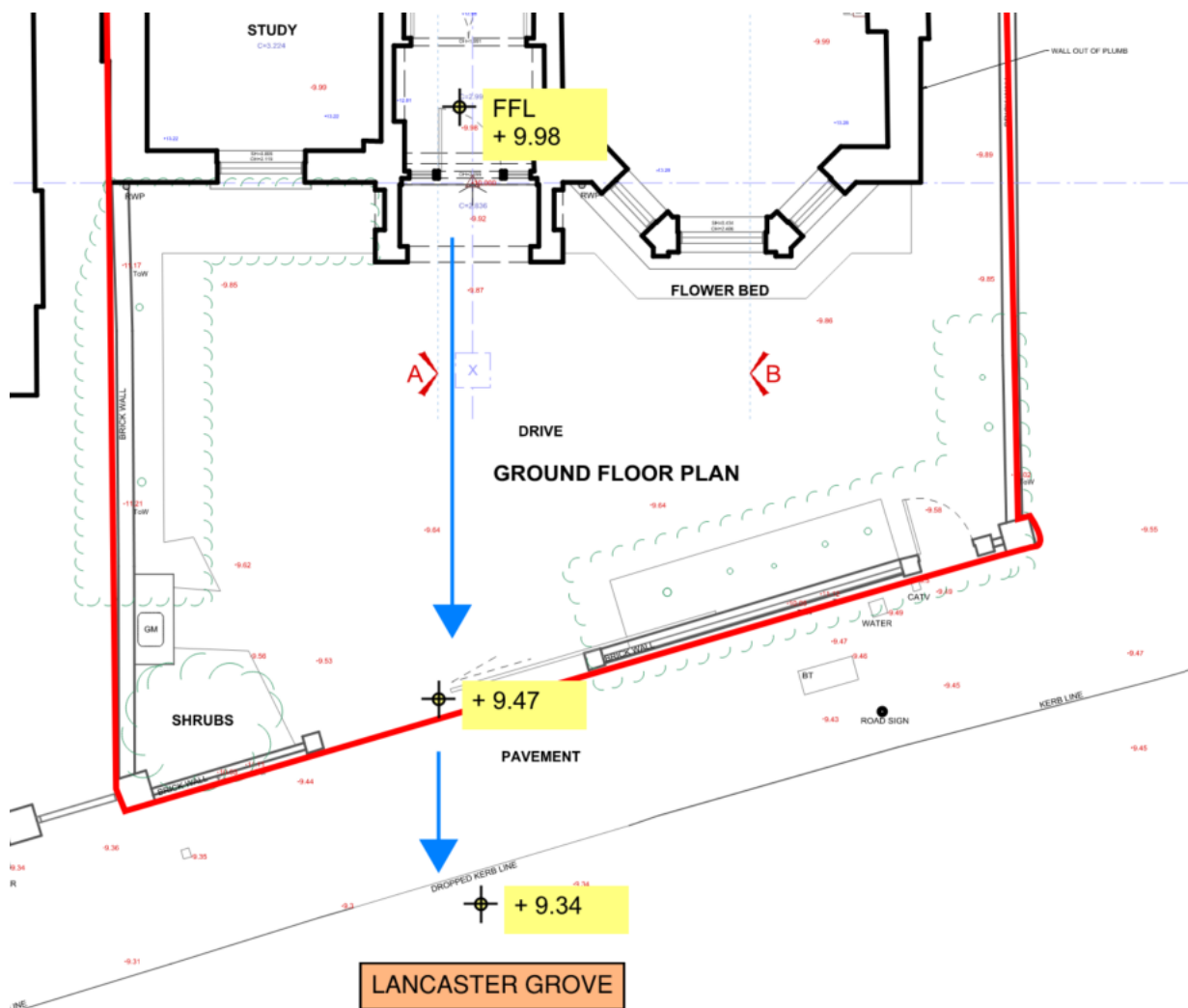


Figure 4.8: Existing levels at front of site.

This shows that the level of the building FFL is 650mm above the adjacent public highway meaning the risk of any surcharged flooding from the sewer in the highway reaching the site is low. As the highway here also slopes away from the site in a northeast direction, it is anticipated that any potential surcharging of sewers will first breach the sewer system at the lower external levels along Lancaster Grove. Any flood events due to sewers near the development site would also be contained in the highway corridor and not reach the building thresholds which are protected due to it raised topography as outlined above.

The site is therefore considered to be at low risk of flooding from surcharged sewers.

#### 4.6 Summary of Flood Risk and Proposed Mitigation Measures

The site is considered to be at a low / very low risk of flooding, with no significant risk of flooding.

However, as with any basement construction there are inherent risks that should be considered for all subterranean structure. These could include, for example, unexpected groundwater water seepages

through the basement structure, failure of local drainage systems, and burst water mains. To reduce these risks, the following measures will be considered in the detailed design stages:

- As the development proposals include a bedroom and associated facilities at basement level, a clear unobstructed access to upper levels at ground floor level is provided at all times. It is important to note that this basement is not self-contained.
- Two forms of waterproofing to the basement structure are proposed, including a pumped drained cavity system to manage any residual or unexpected groundwater seepages.
- The proposed basement drainage will not be connected directly via gravity to the local or public sewers. It will drain to a new twin pump chamber with 24hour storage capacity in line with Building Regulations (Part H) and will include an alarm facility for notifying of any pumped failures. This will act as a non-return valve and protect the basement level from any surcharging of adjacent gravity drainage networks which could affect basement levels.

## 5 Surface Water Run-off

### 5.1 Existing Surface Water Contributing Area

The total site area is approximately 550m<sup>2</sup>, of this approximately 348m<sup>2</sup> is impermeable. As described in Section 2.1, the site currently drains unrestricted to the public sewer along Lancaster Grove.

### 5.2 Proposed Surface Water Strategy

The total site area remains approximately 550m<sup>2</sup>, and of this approximately 352m<sup>2</sup> is impermeable.

The marginal increase in impermeable area is associated with the proposed lightwell to the front elevation, which replaces a narrow strip of boarder planting adjacent to the bay window at ground level. The proposed lightwell will have a sealed glass roof and is not open to rainwater.

The option of incorporating SuDS features into the scheme was reviewed but as there are no proposed changes to the existing roof area, or significant changes proposed to the external landscaping, were deemed not applicable.

The possibility of including rainwater harvesting for water re-use or irrigation would involve constructing new below ground tank and associated infrastructure in an already constrained site. A new plumbing and water supply network would need to be fitted to the existing house to incorporate water re-use for WC flushing etc. This would be a significant element of work out of proportion to the scale and scope of the works proposed and would impact the viability of the proposals and so is not considered feasible.

The limited works to the existing roof is also mean that green/blue roofs are not considered applicable.

The subject site is constraint in terms of space and feasibility for SuDS features which would make a meaningful contribution to the reduction in surface water discharge rates and other SuDS benefits and so will continue to drain as existing which is considered a reasonable and pragmatic approach. Refer to Appendix A for proposed Drainage Strategy.



## 6 Foul Water

As outlined in Section 2.1, the site has an existing combined drainage network serving the site which eventually outfalls to the public sewers in Lancaster Grove.

It is proposed to re-use this existing connection to the public sewers. The existing private foul water network serving the site will be generally retained where feasible or reinstated where affected by the new constructions. The private network will connect into the public sewer via existing manhole ref M1 located on the southeast corner of the site.

As described above, the development will also include a new foul water pump which is located in basement. This foul water pump will serve; a laundry room, a single ensuite bathroom, and a plant room. It will outfall to the gravity foul water network at ground level. The pump will be sized to accommodate 24 hour emergency storage as required by Building Regulations Part H.

The building is currently used a single private residence and will continue to be used as a single private residence following the proposals, and therefore no meaningful increase in the foul water discharging to the public sewer is expected following the proposals. Refer to Appendix A for proposed Drainage Strategy.

## 7 Conclusions

- The existing site is considered to be at low risk from all sources.
- The proposed basement will be protected from surcharged sewer flooding by the inclusion of a new pumped outlet which acts a non-return valve.
- The proposals do not include a meaningful increase in impermeable areas on site. External ground levels are not changed as a result of the proposals. The existing drainage regime will be retained for the proposed development.
- The proposals do not include a meaningful increase in foul water discharging to the public sewer.
- It is therefore considered that construction can be completed without increasing the flood risk on-site or off-site.

# Appendix A

## Proposed Drainage Strategy

PROPOSED BELOW GROUND DRAINAGE

( ~ 1:200 @ A3 )

