Flood Risk Assessment

July 2026

EAS

# Chaplin House, Widewater Place, Denham, UB9 6NS

**The KSIMC of London**

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# 1 Executive Summary

1.1 The development site is at Chaplin House, Widewater Place, Moor Hall Road, Denham, UB9 6NS.

1.2 The proposed development will convert the existing building into 46 residential units.

1.3 Planning permission has previously been granted at the site for the same scheme (Planning Reference: 76641/APP/2024/1498). As works will not be completed in the required timeframe; a new application is being made. This document ensures that policy and flood risk have been updated to accurately reflect the site at present day.

1.4 The site is located within Flood Zone 1 however pluvial flooding is present within the site. This Flood Risk Assessment assesses all sources of flooding and details mitigation measures.



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## 2 Introduction

2.1 This Flood Risk Assessment (FRA) has been prepared in support of an application by The KSMIC of London, for a proposed permitted development application at Chaplin House, Widewater Place, Moor Hall Road, Denham, UB9 6NS. A location plan is included in **Appendix A**.

2.2 The proposed development consists of the internal reconfiguration of the building to create 46 residential units over three floors comprised of:

- 1 x 3-bedroom units
- 33 x 2-bedroom units
- 12 x 1-bedroom units

2.3 Proposed development plans are included in **Appendix B.**

2.4 The site is shown to be at a low risk of a fluvial (river) flood event being located within the Flood Zone 1 on the Flood Map for Planning. Flood Zone 1 is defined as having less than a 0.1% Annual Expected Probability (AEP) of river flooding. The EA Flood Map has been enclosed in **Appendix C.**

2.5 The contents of this FRA are based on the advice set out in the National Planning Policy Framework (NPPF) last updated December 2024, Annex 3: Flood risk vulnerability classification, also from the NPPF and PPG 'Guidance for Flood Risk and Coastal Change', updated in September 2025.

2.6 This document includes:

Section 2 – provides an introduction;

Section 3 – describes relevant policy;

Section 4 – site description, including site levels, proximity to watercourses etc.;

Section 5 – outline potential sources of flooding;

Section 6 – mitigation measures and access/egress details;

Section 7 – provides a summary and conclusions.


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# 3 Policy Context

### Introduction

3.1 This report is based on the advice set out in the National Planning Policy Framework (NPPF) last updated December 2024 and the Planning Practice Guidance (PPG) updated in September 2025.

3.2 Paragraph 181 of the NPPF discusses the use for site-specific flood-risk assessments and what the assessment should demonstrate:

*"When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:*

*a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*

*b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*

*c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*

*d) any residual risk can be safely managed; and*

*e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan."*

3.3 Paragraph 181 footnote 63 of the NPPF states:

*"A site-specific flood risk assessment should be provided for all developments in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use."*

3.4 Paragraph 170 discusses the suitability of development location, particularly with regards to future risks induced by climate change:

"Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere".

3.5 Paragraph 182 of the NPPF discusses the application of sustainable drainage systems:

"Applications which could affect drainage on or around the site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, and which are proportionate to the nature and scale of the proposal. These should provide multifunctional benefits wherever possible, through facilitating improvements in water quality and biodiversity,


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as well as benefits for amenity. Sustainable drainage systems provided as part of proposals for major development should:

a) take account of advice from the Lead Local Flood Authority;

b) have appropriate proposed minimum operational standards; and

c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development."

3.6 The Flood Map for Planning shows the site to be located in Flood Zone 1, at 'low' risk of flooding from fluvial sources. This is considered to be an area with less than 1 in 1000 annual chance of flooding. The EA Flood Map has been enclosed in **Appendix C.**

**The London Plan (2021)**

3.7 The London Plan provides an overall strategic plan for the development of London over the next 20-25 years. It sets out the integrated economic, environmental, transport and social framework and is legally part of each of London's Local Planning Authorities' Development Plan. This ensures that all planning decisions within Greater London take into account this plan.

3.8 Policy SI 12 Flood Risk Management states:

*"A. Current and expected flood risk from all sources (as defined in paragraph 9.2.12) across London should be managed in a sustainable and cost-effective way in collaboration with the Environment Agency, the Lead Local Flood Authorities, developers and infrastructure providers.*

*B. Development Plans should use the Mayor's Regional Flood Risk Appraisal and their Strategic Flood Risk Assessment as well as Local Flood Risk Management Strategies, where necessary, to identify areas where particular and cumulative flood risk issues exist and develop actions and policy approaches aimed at reducing these risks. Boroughs should cooperate and jointly address cross-boundary flood risk issues including with authorities outside London.*

*C. Development proposals should ensure that flood risk is minimised and mitigated, and that residual risk is addressed. This should include, where possible, making space for water and aiming for development to be set back from the banks of watercourses.*

*D. Developments Plans and development proposals should contribute to the delivery of the measures set out in Thames Estuary 2100 Plan. The Mayor will work with the Environment Agency and relevant local planning authorities, including authorities outside London, to safeguard an appropriate location for a new Thames Barrier.*

*E. Development proposals for utility services should be designed to remain operational under flood conditions and buildings should be designed for quick recovery following a flood.*

*F. Development proposals adjacent to flood defences will be required to protect the integrity of flood defences and allow access for future maintenance and upgrading. Unless exceptional circumstances are demonstrated for not doing so, development proposals should be set back from flood defences to allow for any foreseeable future maintenance and upgrades in a sustainable and cost-effective way.*



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*G. Natural flood management methods should be employed in development proposals due to their multiple benefits including increasing flood storage and creating recreational areas and habitat."*

3.9 Policy SI 13: Sustainable Drainage states:

*"A. Lead Local Flood Authorities should identify – through their Local Flood Risk Management Strategies and Surface Water Management Plans – areas where there are particular surface water management issues and aim to reduce these risks. Increases in surface water runoff outside these areas also need to be identified and addressed.*

*B. Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:*

1) *rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)*
2) *rainwater infiltration to ground at or close to source*
3) *rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)*
4) *rainwater discharge direct to a watercourse (unless not appropriate)*
5) *controlled rainwater discharge to a surface water sewer or drain*
6) *controlled rainwater discharge to a combined sewer.*

*C. Development proposals for impermeable surfacing should normally be resisted unless they can be shown to be unavoidable, including on small surfaces such as front gardens and driveways.*

*D. Drainage should be designed and implemented in ways that promote multiple benefits including increased water use efficiency, improved water quality, and enhanced biodiversity, urban greening, amenity, and recreation."*

3.10 As the proposals are for the conversion of the existing buildings there are no changes proposed to the existing drainage.

3.11 This flood risk assessment has considered this policy in depth to ensure that the proposals fully comply with the requirements of the 2021 London Plan.

**Hillingdon Local Plan Part 1 (2012)**

3.12 The Hillingdon Local Plan Part 1 was adopted in November 2012 and sets out the policies for development in the Borough up until 2026.

3.13 Policy EM1: Climate Change Adaptation and Mitigation includes but is not limited to:

*"The Borough will ensure that climate change adaptation is addressed at every stage of the development process by:*

*10. Locating and designing development to minimise the probability and impacts of flooding.*

*11. Requiring major development proposals to consider the whole water cycle impact which includes flood risk management, foul and surface water drainage, and water consumption.*



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*13. Promoting the use of living walls and roofs, alongside sustainable forms of drainage to manage surface water run-off and increase the amount of carbon sinks."*

3.14 Policy EM6: Flood Risk Management states:

*"The Council will require new development to be directed away from Flood Zones 2 and 3 in accordance with the principles of the National Planning Policy Framework (NPPF).*

*The subsequent Hillingdon Local Plan: Part 2 -Site Specific Allocations LDD will be subjected to the Sequential Test in accordance with the NPPF. Sites will only be allocated within Flood Zones 2 or 3 where there are overriding issues that outweigh flood risk. In these instances, policy criteria will be set requiring future applicants of these sites to demonstrate that flood risk can be suitably mitigated.*

*The Council will require all development across the borough to use sustainable urban drainage systems (SUDS) unless demonstrated that it is not viable. The Council will encourage SUDS to be linked to water efficiency methods. The Council may require developer contributions to guarantee the long term maintenance and performance of SUDS is to an appropriate standard."*

3.15 Implementation of Policy EM6: how we will achieve this:

*"The Council will implement Policy EM6 by:*

- *Working with the Environment Agency, British Waterways, Natural England and other partners to develop a management plan for the Grand Union Canal and other Blue Ribbon Networks where they are not currently in place.*
- *Developing flood risk policies including SUDS in the Hillingdon Local Plan: Part 2-Development Management Policies LDD."*

**The Hillingdon Local Plan Part 2 (2020)**

3.16 The Hillingdon Local Plan Part 2 was adopted by the Council in January 2020 and provides a development strategy for the borough up until 2026.

3.17 Policy DMEI 1: Living Walls and Roofs and on-site Vegetation states:

*All development proposals are required to comply with the following: i) All major development should incorporate living roofs and/or walls into the development. Suitable justification should be provided where living walls and roofs cannot be provided; and ii) Major development in Air Quality Management Areas must provide onsite provision of living roofs and/or walls. A suitable offsite contribution may be required where onsite provision is not appropriate.*

3.18 Policy DMEI 9 Management of Flood Risk states:

*"A) Development proposals in Flood Zones 2 and 3a will be required to demonstrate that there are no suitable sites available in areas of lower flood risk. Where no appropriate sites are available, development should be located on the areas of lowest flood risk within the site. Flood defences should provide protection for the lifetime of the development. Finished floor levels should reflect the Environment Agency's latest guidance on climate change.*

*B) Development proposals in these areas will be required to submit an appropriate level Flood Risk Assessment (FRA) to demonstrate that the development is resilient to all sources of flooding.*



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*C) Development in Flood Zone 3b will be refused in principle unless identified as an appropriate development in Flood Risk Planning Policy Guidance. Development for appropriate uses in Flood Zone 3b will only be approved if accompanied by an appropriate FRA that demonstrates the development will be resistant and resilient to flooding and suitable warning and evacuation methods are in place.*

*D) Developments may be required to make contributions (through legal agreements) to previously identified flood improvement works that will benefit the development site.*

*E) Proposals that fail to make appropriate provision for flood risk mitigation, or which would increase the risk or consequences of flooding, will be refused."*

3.19 Policy DMEI 10 Water Management, Efficiency and Quality' states:

*"A) Applications for all new build developments (not conversions, change of use, or refurbishment) are required to include a drainage assessment demonstrating that appropriate sustainable drainage systems (SuDS) have been incorporated in accordance with the London Plan Hierarchy (Policy 5.13: Sustainable drainage).*

*B) All major new build developments, as well as minor developments in Critical Drainage Areas or an area identified at risk from surface water flooding must be designed to reduce surface water run-off rates to no higher than the pre-development greenfield run-off rate in a 1:100 year storm scenario, plus an appropriate allowance for climate change for the worst storm duration. The assessment is required regardless of the changes in impermeable areas and the fact that a site has an existing high run-off rate will not constitute justification.*

*C) Rain Gardens and non householder development should be designed to reduce surface water run-off rates to Greenfield run-off rates.*

*D) Schemes for the use of SuDS must be accompanied by adequate arrangements for the management and maintenance of the measures used, with appropriate contributions made to the Council where necessary.*

*E) Proposals that would fail to make adequate provision for the control and reduction of surface water run-off rates will be refused.*

*F) Developments should be drained by a SuDS system and must include appropriate methods to avoid pollution of the water environment. Preference should be given to utilising the drainage options in the SuDS hierarchy which remove the key pollutants that hinder improving water quality in Hillingdon. Major development should adopt a 'treatment train' approach where water flows through different SuDS to ensure resilience in the system.*

*Water Efficiency*

*G) All new development proposals (including refurbishments and conversions) will be required to include water efficiency measures, including the collection and reuse of rainwater and grey water.*

*H) All new residential development should demonstrate water usage rates of no more than 105 litres/person/day.*

*I) It is expected that major development8 proposals will provide an integrated approach to surface water run-off attenuation, water collection, recycling, and reuse.*

*Water and Wastewater Infrastructure*



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*J) All new development proposals will be required to demonstrate that there is sufficient capacity in the water and wastewater infrastructure network to support the proposed development. Where there is a capacity constraint the local planning authority will require the developer to provide a detailed water and/or drainage strategy to inform what infrastructure is required, where when and how it will be delivered."*

**West London Strategic Flood Risk Assessment (SFRA) 2018**

3.20 The West London SFRA was published in 2018 with the overarching aim "to provide the evidence base for ensuring development is steered away from areas identified most at risk from various flood sources, reducing the risk of flooding to its residents and buildings."

3.21 The most relevant part of the SFRA for this report is Section 4 specifically 4.2.3. Part of which can be seen below.

3.22 The first paragraph of 4.2.3 relating to Site-Specific Flood Risk Assessments (FRA) states:

*"Site-specific FRAs should be proportionate to the degree of flood risk, making the best use of available information. They should also be appropriate to the scale, nature and location of the development. For example, developments such as single house extensions would generally require a less detailed assessment as they tend not to significantly increase the number of people present in an area at risk of flooding. Conversely, new developments comprising of multiple houses in a similar location would generally require FRAs with greater detail."*

3.23 The West London SFRA provides an interactive map for site-specific assessments of flood risk; these are detailed below for the site:

- The site is confirmed to be in Flood Zone 1.
- In terms of surface water, the site does not experience flooding in a 3.3% AEP storm event with extents only found beyond the north and east site boundaries. Surface water flooding is projected to occur in both 1% and 0.1% AEP events, with the former having extents mostly along the site boundaries, while the latter model indicates surface water flooding within the access roads and parking areas surrounding the buildings, but not within the buildings.
- The site is outside the extents of fluvial flooding from the Upper Colne for both the 1 in 100 year (1% AEP) and 1 in 100 year + 20% Climate Change events
- The site is also located outside the outlines of previous historic flood events (i.e., 2017)
- The site is not located in any Flood Warning or Flood Alert Areas.
- The site is positioned in a 1km$^2$ quartile that is defined as having between than 25% and 50% susceptibility to groundwater flooding.
- While there are artificial flood extents that reach close to the site's south boundary the site is not indicated to be at risk of flooding from artificial sources.
- In reference to source protection zones, the site is located within Zone I (inner protection zone) - This zone has a 50 day travel time of pollutant to source with a 50 metres default minimum radius.



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- The closest flood defence to the site is located approximately 600m south of the site. None of the site is noted to be influenced by having reduced flood risk due to flood defences.

3.24 The pluvial flood risk maps in the West London SFRA are considered to be out of date given the release of the latest iteration of pluvial flood mapping by Environment Agency in May 2026. The West London Strategic Flood Risk Assessment mapping is enclosed in **Appendix F** for reference however for an up to date pluvial flood risk assessment, Section 5 of this report should be reviewed.

**London Borough of Hillingdon Surface Water Management Plan (SWMP) (2013)**

3.25 The London Borough of Hillingdon SWMP was published in 2013 as part of the Drain London Project. The document outlines the preferred surface water management strategy in Hillingdon and considers flooding from sewers, drains, groundwater and runoff from land and identifies Critical Drainage Areas (CDA).

3.26 This site was not identified as being within a CDA within the SWMP.



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# 4 Existing Site Assessment

### Site Description

4.1 The development site is at Chaplin House, Widewater Place, Moor Hall Road, Denham, UB9 6NS. It is almost completely impermeable, consisting of a large building with associated car parking.

4.2 The site is on the north side of Moor Hall Road and is the east facing building within Widewater Place and is surrounded by two other large office blocks with associated car parking. A location plan is contained in **Appendix A**.

4.3 The proposed development will convert the existing Chaplin House building for residential development comprise of 46 residential units. The proposed development plans are included at **Appendix B.**

### Local Watercourses

4.4 The Grand Union Canal is located along the western boundary of the site and the River Colne which is classified as a main river by the Environment Agency is located approximately 750m further west. The proposals will have no impact on either of these waterways as the proposals do not result in any additional built development.

### Site Levels

4.5 A topographical survey covering the site and Chaplin House is included in **Appendix D**. The survey shows the wider site to be relatively flat, with levels typically between 37.60m AOD and 38.00m AOD. It is noted that the area surrounding Chaplin House is higher than the levels on the car park, at between 38.28m AOD and 38.40m AOD. The thresholds at entrances around the building are set at 38.30m AOD and above.

4.6 The topographical survey also identifies a number of surface water drainage channels across the car park. The drainage channels are located away from buildings which would help to manage the surface water flood risk and direct water away from the buildings.

### Geology

4.7 In reference to the British Geological Survey (BGS)'s online mapping, the site is located in an area with the dominant bedrock geology being the Seaford Chalk Formation and Newhaven Chalk Formation (undifferentiated), with the superficial geology in the area being alluvium (clay, silt, sand & gravel).

4.8 There are no recorded boreholes within close proximity to the site.

### Sewer Records

4.9 A Thames Water Asset Location Map is included within **Appendix E**, this map shows that there are two surface water sewers which bound the site, one beyond the northern boundary of the site, and one along the southern border in close proximity to Chaplin house; both of which outfall


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to nearby watercourses. There is also a foul water sewer located just beyond the site's eastern boundary before flowing southwards.



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# 5 Potential Sources of Flooding

### Fluvial

5.1 A copy of the Environment Agency's Flood Map is enclosed in **Appendix C.** The mapping shows that the site is wholly located within Flood Zone 1, an area at 'very low' risk of flooding from fluvial or tidal sources. Areas in Flood Zone 1 have a less than 1 in 1000 probability of flooding each year.

5.2 The risk from fluvial flooding is therefore deemed to be low.

### Surface Water

5.3 Surface water flooding refers to flooding caused when the intensity of rainfall, particularly in urban areas, can create runoff which temporarily overwhelms the capacity of the local drainage systems including sewers, rivers and watercourses or does not infiltrate into the ground. The water ponds on the ground and flows towards low-lying land. This source of flood risk is also known as 'pluvial'.

5.4 The Flood Map for Planning Surface Water Spatial Planning datasets are an assessment of where surface water flooding may occur.

5.5 To assess the impacts of climate change over the lifetime of the development, the mapping includes the 'Upper End' allowance for climate change for the 2070s epoch (2061-2125) in accordance with the EA's guidance Flood risk assessments: climate change allowances.

5.6 The design flood event for surface water is the 1.0% AEP year event including an allowance for climate change (Figure 5.1).


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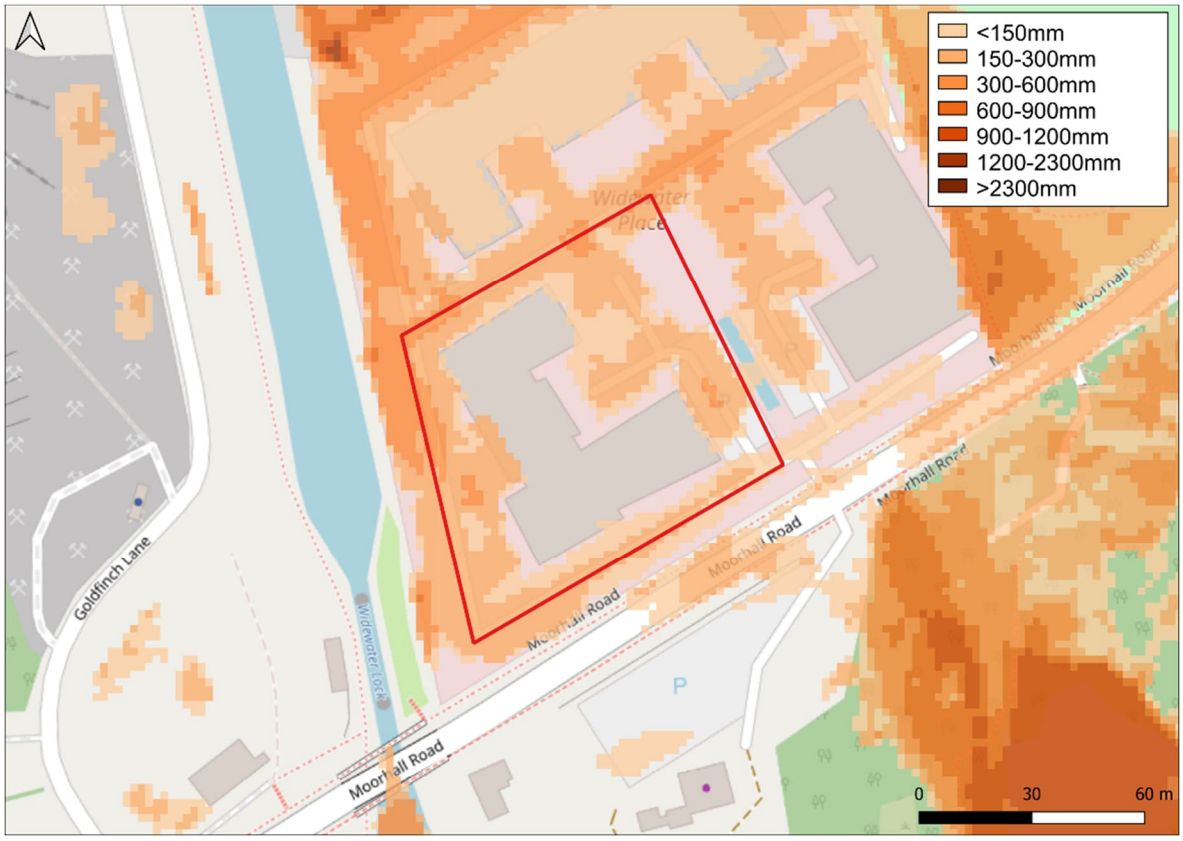



***Figure 5.1 – 1% AEP Extent including an allowance for climate change - Flood Map for Planning Surface Water Spatial Planning. Site outlined in red. © Environment Agency. All licensed under the Open Government Licence (OGL). © OpenStreetMap contributors***

5.7 Interrogation of the maps of modelled flood depth show flooding at the site with depths ranging from below 150mm up to 300mm. Flooding is mainly located within the internal access road and parking areas. Noteworthy, the building entrance remains outside the modelled flood extent as does most of the southern boundary of the building.

5.8 Flooding with depths up to 300mm is present along the western perimeter of the building and flood depths less than 150mm encroach along the northern perimeter of the building.

5.9 There are isolated pockets of pluvial flooding shown to have depths between 300-600mm to the west, east and northeast of the building. These areas correspond with the location of drainage channels where topographical levels are slightly lower than the surrounding car park area.

5.10 Assessing the proposed floor plans, there are no proposed entrances to the building where the modelled pluvial flood extent is shown to encroach into the building. The existing external door along the western perimeter of the building is to be sealed shut therefore there is limited opportunity for surface water ingress into the building.

5.11 Given the above, the risk of surface water flooding to the building is considered to be low however mitigation measures to manage the identified flood risk on the internal access road and parking areas are discussed in **Section 6** of this report.

5.12 The site is and will remain 100% impermeable consisting of roof area and hardstanding. As there is no increase in impermeable area, the proposals would not exacerbate pluvial flooding onsite.



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### Groundwater

5.13 The West London SFRA mapping shows that the site is located in a 1km$^2$ square which has between 25% and 50% susceptibility to groundwater flooding.

5.14 As the finished floor levels of the building are higher than surrounding ground levels, there is no basement level and the SWMP confirms that there are no recorded flooding incidents within the vicinity, the risk of groundwater flooding to the site is considered to be low.

### Artificial

5.15 The EA Flood Map for Planning and West London SFRA show the site is not at risk of flooding from artificial sources therefore the risk from artificial sources can be deemed low.

### Sewer Flooding

5.16 Sewer flooding generally results from localised short-term intense rainfall events overloading the capacity of the private and public drainage or due to failures within the public sewer.

5.17 The SFRA mapping shows that there have been no instances of sewer flooding at this location.

5.18 There is a surface water sewer along the southern boundary of the building. Assessing topographical levels, levels here are relatively flat. Should a sewer flood event occur, waters are likely to pool and find their level before receding into the wider onsite drainage network. There are no thresholds to the building here therefore there is limited opportunity for flood waters to enter the building.

5.19 The risk from sewer flooding is considered to be low.



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# 6 Mitigation Measures

6.1 It should be noted that office use buildings are deemed to be a “less vulnerable” land use in terms of flood risk and residential use has a “more vulnerable’ classification”.

6.2 As discussed in Section 5, the proposed buildings are located wholly within Flood Zone 1. An assessment of floor plans confirms that there is limited opportunity for surface water ingress into the building however as the car park has been identified to be at risk of flooding and the proposals increase the vulnerability use at the site, further mitigation measures are proposed.

### Flood Resistant Measures

6.3 Whilst there is limited opportunity for surface water ingress into the building as thresholds are outside the modelled surface water flood extent, flood resistant measures should be retrofitted into the proposed. For example, all ground floor airbricks should be fitted with a suitable flood covers. Where existing entrances are being sealed, it should be ensured these are made watertight, and service entry points should be sealed. A Flood Door should be installed at the building entrance to protect the ground floor from internal flooding.

### Access and Egress

6.4 The EA’s mapping does not include information on flood hazard. The site is flat with no significant falls. As such the velocity of the pluvial flooding is anticipated to be low. Based on a flood depth of 300mm, the hazard rating for the pedestrian and vehicle access onto Moorhall Road is expected to be ‘danger for some’ (e.g. children, the elderly and the infirm). It can therefore be concluded that safe vehicle and pedestrian access is achieved for the general public.

6.5 Emergency vehicles will also be able to access the site should flood depths reach 300mm.

6.6 An evacuation route is detailed in Figure 6.1.

### Flood Evacuation Plan

6.7 In the event that flooding does occur on site, it is recommended that due to the unpredictable nature of surface water flooding that residents do not leave the site until the floodwater has receded. It is recommended that all unnecessary travel is avoided during times of flooding as the safest place for residents and visitors is to remain within the building during a flood event.

6.8 The onset of surface water flooding can occur quickly, and it is important to warn residents of the risk within the car park and when leaving or entering the building during an event like this. It is recommended that a flood notice is permanently located within the lobby for the residents within the block and within a notice board or other suitable area in the car park. An example of such a notice is included in Figure 6.2.

### Met Office Weather Warnings

6.9 Warnings cannot be issued for pluvial flooding however these are likely to correspond with periods of heavy or prolonged rainfall. It is recommended that residents sign up to receive weather warnings to improve awareness.


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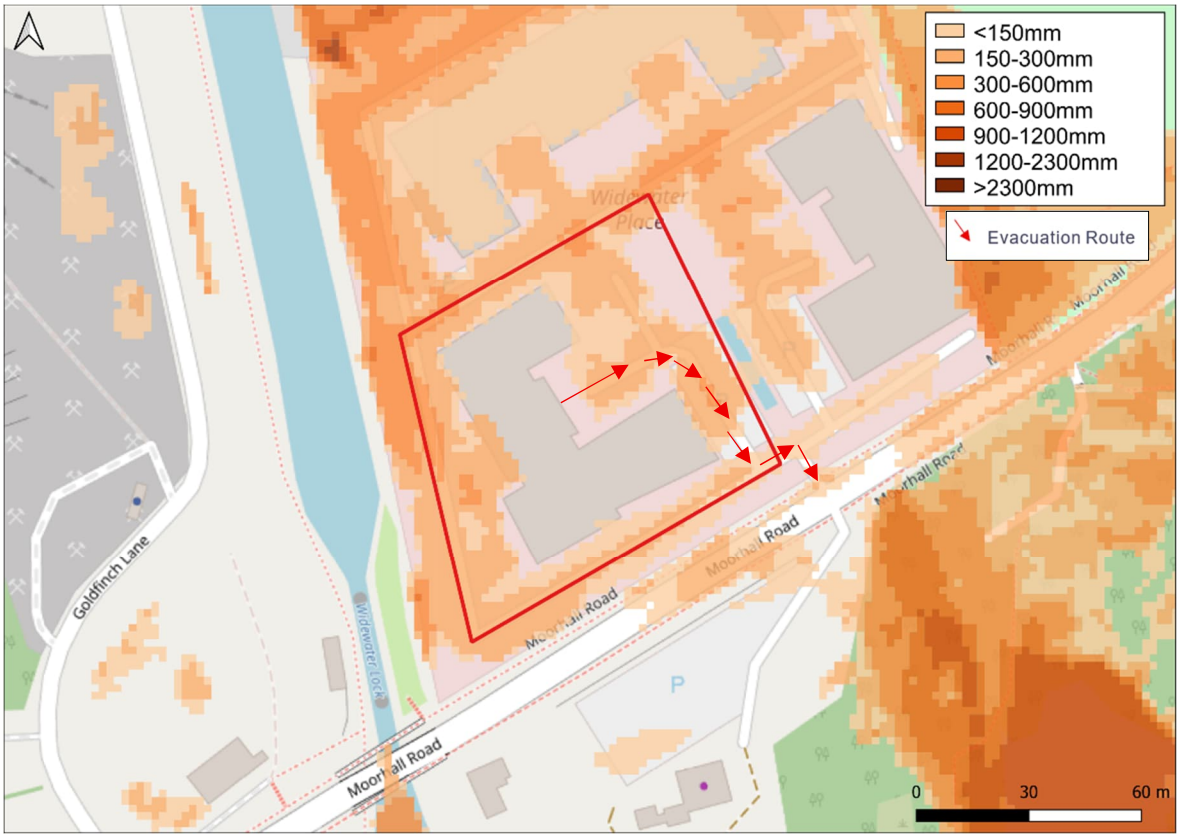



*Figure 6.1 – Evacuation Route and 1% AEP Extent including an allowance for climate change - Flood Map for Planning Surface Water Spatial Planning. Site outlined in red. © Environment Agency. All licensed under the Open Government Licence (OGL). © OpenStreetMap contributors.*



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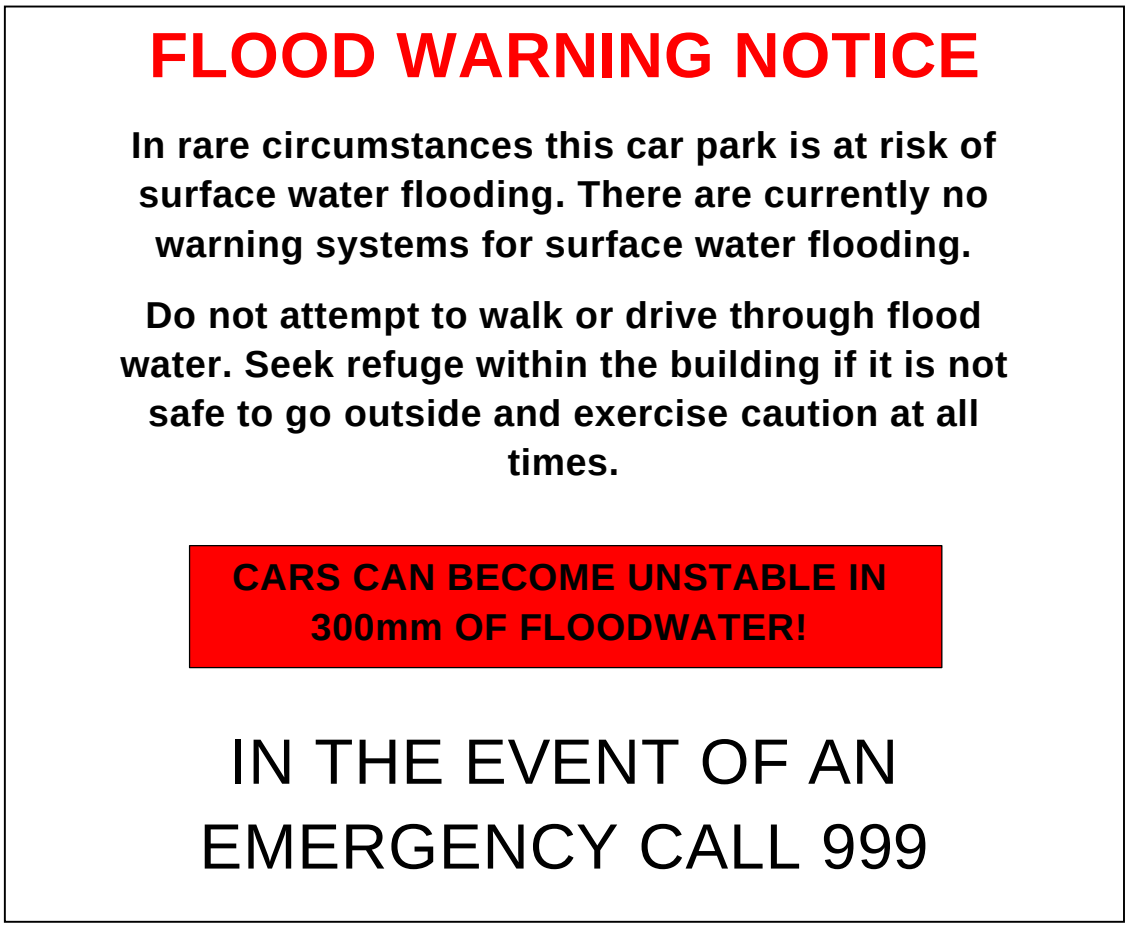



*Figure 6.2 – Example of Flood Warning Notice.*


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# 7 Conclusions

7.1 This Flood Risk Assessment (FRA) has been prepared in support of an application by The KSMIC of London, for a proposed permitted development application at Chaplin House, Widewater Place, Moor Hall Road, Denham, UB9 6NS.

7.2 Planning permission has previously been granted at the site for the same scheme (Planning Reference: 76641/APP/2024/1498). As works will not be completed in the required timeframe, a new application is being made. This updated Flood Risk Assessment ensures the site is assessed using the current and most up to date flood data and in line with relevant policy.

### Flood Risk Summary

7.3 The site is located within Flood Zone 1.

7.4 The design flood event for surface water is the 1 in 100 year event including an allowance for climate change. Interrogation of the maps of modelled flood depth show flooding at the site with depths ranging from below 150mm up to 300mm. Flooding is mainly located within the internal access road and parking areas. The building entrance remains outside the modelled flood extent. It is therefore concluded that there is low risk of internal flooding.

7.5 Mitigation measures detailed in this report include flood resistant measures such as flood protection covers on all ground floor airbricks and display of a flood warning sign.

7.6 Access and egress has been demonstrated to be achieved for the general public. It is recommended that residents sign up to Met Office weather warnings.

7.7 There is to be no increase in building roof area or hardstanding and therefore no amendments to the existing surface water drainage are required.

### Conclusion

7.8 Overall, the building is at low risk of flooding from all sources of flood risk. The proposed development is considered to be suitably and sustainably located and is in line with local and national policies.

7.9 It is concluded that there are no reasons relating to flood risk as to why permission should not be granted.


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# 8 Appendices


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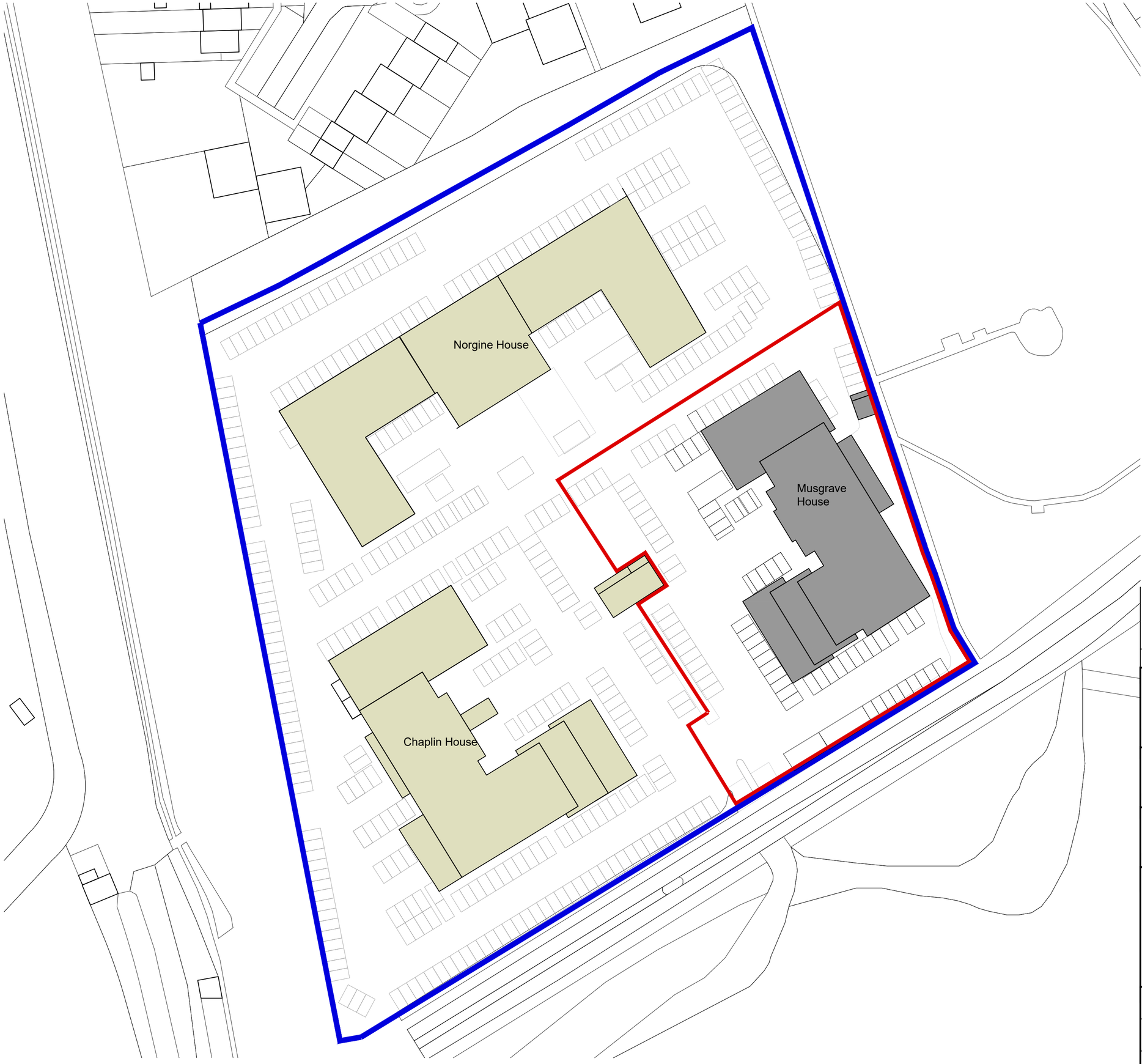

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# Appendix: A – Location Plan



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# PROPOSED

| | | |
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PROJECT
Musgrave House, Widewater Place
Moorhall road, Uxbridge
London W1

DRAWING
Proposed
Location Plan - Musgrave House

CH+MRP ARCHITECTS
41-42 FOLEY STREET, LONDON W1W 7TS
T: +(0) 207 253 2526 / +(0)207 631 5405
E: mail@ch-architects.com / info@mrpartnership.co.uk
www.ch-architects.com / www.mrpartnership.co.uk

| | | | |
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| DATE: 24/05/2021 | SCALE: 1:1250@A4 - | DRAWN: CAD | |
| DWG No: 3155_061 | | REV. No: / | |

FILE: 3155-SITE PLANS-MUSGRAVE.dwg

# Appendix: B – Proposed Development Plans



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FIRST FLOOR x 13 APARTMENTS

- 9 x 2 BEDROOM APARTMENTS
- 2 x 1 BEDROOM APARTMENTS
- 2 x 3 BEDROOM APARTMENTS

GROSS INTERNAL AREA - 1256sqm




SECOND FLOOR x 8 APARTMENTS

- 6 x 2 BEDROOM APARTMENTS
- 1 x 1 BEDROOM APARTMENTS
- 1 x 3 BEDROOM APARTMENTS

GROSS INTERNAL AREA - 800sqm



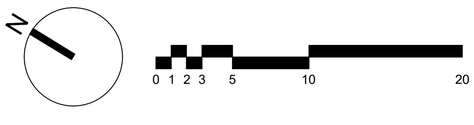

GROUND FLOOR x 15 APARTMENTS

- 5 x 2 BEDROOM APARTMENTS
- 10 x 1 BEDROOM APARTMENTS
- 0 x 3 BEDROOM APARTMENTS

GROSS INTERNAL AREA - 1372sqm

NOTE:

The flats fully comply with the Nationally Described Space Standards (NDSS)




| | | |
|---|---|---|
| 15.09.2021 | NOTE TO OUTSIDE DOORS ADDED | A |

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London W1

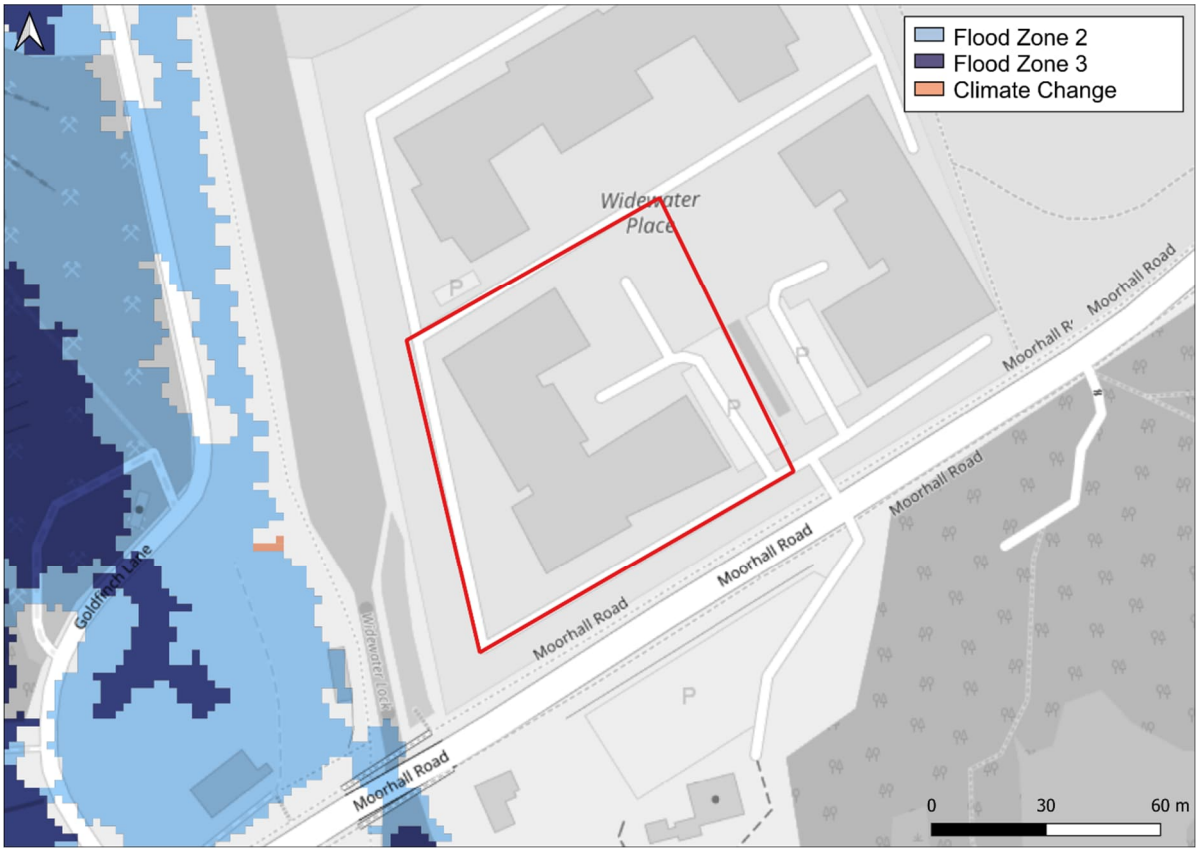
DRAWING: Proposed
Ground Floor, First and Second Floor Plan

CH+MRP ARCHITECTS
41-42 FOLEY STREET, LONDON W1W 7TS
T: +(0) 207 253 2526 / +(0)207 631 5405
E: mail@ch-architects.com / info@mrpartnership.co.uk
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|---|---|---|---|
| DATE: 11/05/2021 | SCALE: 1:200@A1 1:200@A1 | DRAWN: CAD | |
| DWG No: 3155_20_106 | | REV. No: A | |

FILE: 3155-PLANS-MUSGRAVE HOUSE-20210915.dwg

## Appendix: C – EA Flood Map for Planning




*Flood Map for Planning. Site outlined in red. Flood data © Environment Agency. All licensed under the Open Government Licence (OGL). © OpenStreetMap contributors.*




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# Appendix: D – Topographic Survey



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504960 E
505000 E
505040 E
505080 E
505120 E
505160 E
188920 N
188880 N
188840 N
188800 N

NORGINE HOUSE
MUSGRAVE HOUSE
WIDEWATER CAFE

STN1 E=505066.393 N=188917.780 L=37.882
STN2 E=505140.636 N=188819.357 L=38.233
STN3 E=505127.485 N=188848.908 L=37.967
STN4 E=505106.290 N=188876.243 L=37.706
STN5 E=505103.754 N=188911.557 L=37.790
STN6 E=505134.303 N=188892.053 L=37.494
STN7 E=504984.548 N=188868.480 L=37.769
STN8 E=505037.813 N=188901.261 L=37.758
STN9 E=505028.729 N=188834.183 L=37.802
STN10 E=505089.483 N=188852.983 L=37.960
STN11 E=505058.284 N=188881.538 L=37.927
STN101 E=504989.052 N=188806.807 L=37.595
STN103 E=505104.964 N=188857.649 L=37.845
STN104 E=505135.524 N=188880.970 L=37.731
STN105 E=505097.964 N=188857.649 L=37.845
STN106 E=505059.507 N=188838.403 L=37.915

Scale in Metres @ 1:200

**Abbreviations**

| | | | |
|---|---|---|---|
| AB | Air Brick | IR | Iron Railings |
| AV | Air Valve | JB | Junction Box |
| BB | Bellsha Beacon | KO | Kerb Outlet |
| BGP | Break Glass Point | LB | Litter Bin |
| BK | Brick | LP | Lamp Post |
| BO | Bollard | LW | Light Well |
| BS | Bus Stop | MH | Manhole |
| BT | British Telecom cover | MK | Marker |
| C | Floor to Cill height | MT | Meter |
| C/B | Close Board | MY | Mercury |
| CL | Cover Level | OH | Overhead |
| C/L | Chain Link | PM | Parking Meter |
| CO | Column | PB | Post Box |
| CONC | Concrete | P/R | Post & Rail |
| CP | Catch Pit | PT | Post |
| CPL | Coping Level | P/W | Post & Wire |
| CPS | Concrete Paving Slabs | RE | Rodding Eye |
| CTV | Cable Television Cover | RET | Retaining |
| DK | Drop Kerb | RS | Road Sign |
| DH | Door Height | RSS | Rolled Steel Stansion |
| EP | Electricity Pole | RSJ | Rolled Steel Joist |
| ER | Earthing Rod | RWP | Rain Water Pipe |
| FB | Flower Bed | SC | Stop Cock |
| FC | False Ceiling | SVP | Soil Vent Pipe |
| FE | Fire Escape | TCB | Telephone Call Box |
| FH | Fire Hydrant | TBM | Temp. Bench Mark |
| FHR | Fire Hose Reel | TP | Telegraph Pole |
| FL | Floor Level | TL | Traffic Light |
| FP | Flag Pole | TK | Trunking |
| GP | Gate Post | UTL | Unable To Lift |
| GU | Gully | V | Vent |
| GV | Gas Valve | VP | Vent Pipe |
| H | Cill to Head height | WM | Water Meter |
| HT | Height | WP | Waste Pipe |
| IC | Inspection Cover | WSC | Water Stop-Cock |
| IL | Invert Level | WV | Water Valve |

**Notes**

| | | | |
|---|---|---|---|
| Ceiling Height | 3050 | Arch | |
| Level | +20.00 | Radiator | |
| Floor Level | +20.00 FL | Station | |
| Ceiling Level | +20.00 CL | Hedge | |
| Soffit Level | +20.00 SL | Steep slope | |
| False Ceiling Level | +20.00 FCL | | |
| Floor to cill height | c-1234 | Fence | |
| Cill to head height | h-1234 | Foul pipe | |
| Door height | DH 2000 | Storm pipe | |

**Survey Coordinates and Grid**

Please note that the grid shown on this drawing is as follows;

- ☐ Arbitrary
- ☐ Arbitrary but related to building line
- ☐ Arbitrary but approx. related to North
- ☐ Best fit to an Ordnance Survey Digital Sheet
- ☒ Related to the Ordnance Survey National Grid

**Levels**

Please note that the levels shown on this drawing are as follows;

- ☐ Arbitrary and related to a temporary bench mark
- ☐ Related to an Ordnance Survey Bench Mark
- ☒ Related to the Ordnance Survey National GPS Network

Level positions are indicated by a cross or the decimal point

**Bench Mark**

Type *Ordnance Survey*
Position *G.P.S*
Value

**Trees**

All trees sizes are approximate and should be checked on site before using information. Where guaranteed tree species become important the services of a tree expert should be employed

Notation : diameter of trunk / Height / Spread

**Drainage**

Where drainage covers have been lifted data has been recorded for each individual manhole from the surface and connections to other manholes, pipes or gullys are assumed. Where information is required by accessing the manhole or tracing to other manholes then a services trace will be needed.

**Notes**

| Revision | Date | By |
|---|---|---|
| | | |


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PRECISION ● MEASURES

Land Surveys . Measured Building Surveys . 3D Laser Scanning
Utility Surveys . Lease Plans . 3D Models . Rights of Light Surveys

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Tel : 01732 469100 Fax : 01732 469101 E : post@cadplan.co.uk


Client
Fprop Offices General Partner Limited

Project
Widewater Place
Moorhall Road
Harefield

Drawing Title
Topographic Survey

| Sheet/Scale | Date | Drawn | Checked |
|---|---|---|---|
| A0@1:200 | 24/06/21 | B.J.V. | C.S.D. |
| Project No. | Drawing No. | | Revision |
| 9716 | 06 | Preliminary | |




**Abbreviations**

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- ☐ Arbitrary but related to building line
- ☐ Arbitrary but approx. related to North
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Level positions are indicated by a cross or the decimal point

**Bench Mark**

Type Ordnance Survey

Position G.P.S

Value

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**Notes**

| Revision | Date | By |
|---|---|---|
| | | |


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Land Surveys . Measured Building Surveys . 3D Laser Scanning
Utility Surveys . Lease Plans . 3D Models . Rights of Light Surveys

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Widewater Place
Moorhall Road
Harefield

Drawing Title
Topographic Survey

| Sheet/Scale | Date | Drawn | Checked |
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| A0@1:200 | 24/06/21 | B.J.V. | C.S.D. |
| Project No. | Drawing No. | Preliminary | Revision |
| 9716 | 07 | | |

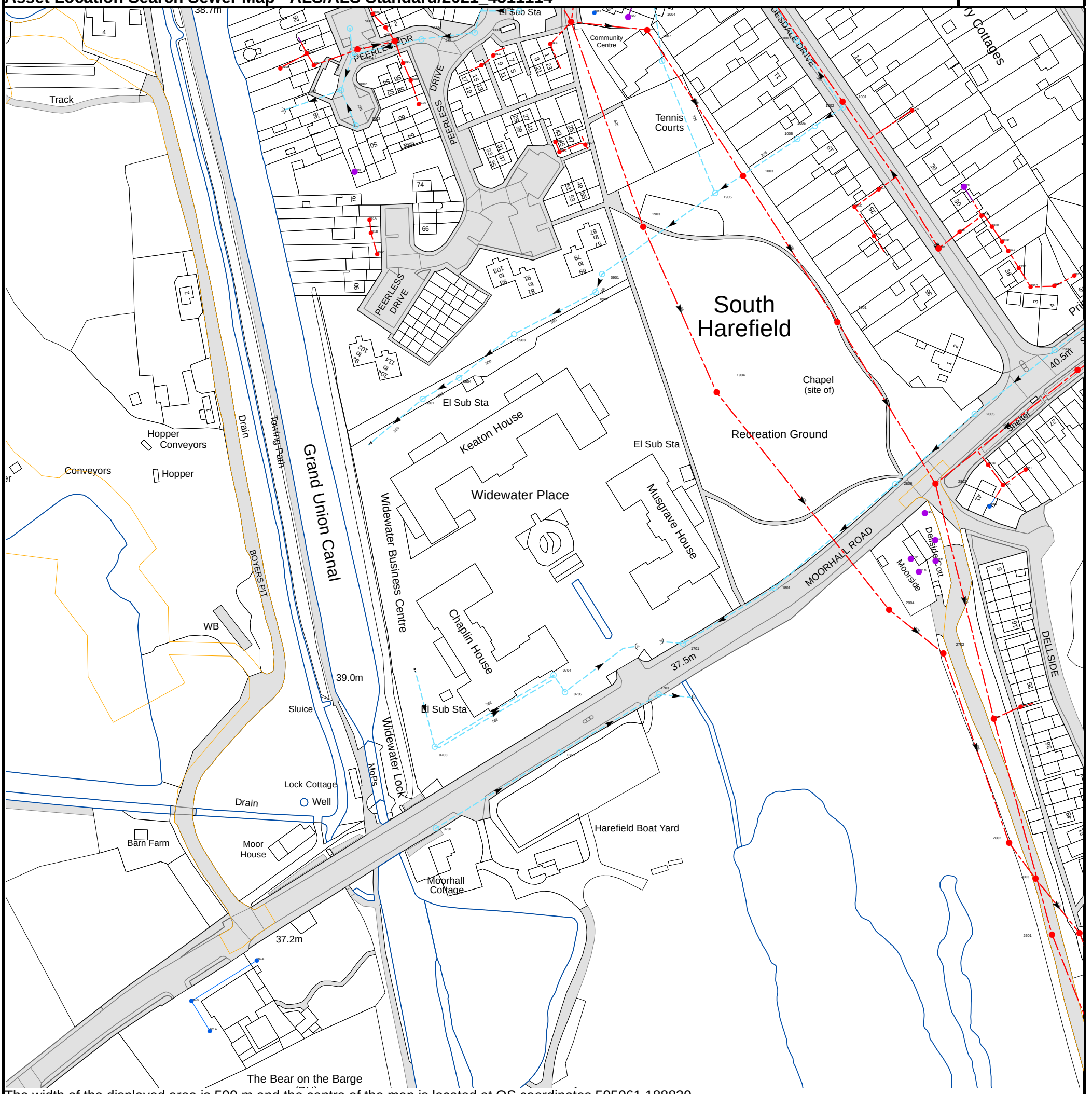
# Appendix: E – Thames Water Sewer Mapping



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# Asset Location Search Sewer Map - ALS/ALS Standard/2021_4511114




The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 505061,188830

**The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.**

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

| Manhole Reference | Manhole Cover Level | Manhole Invert Level |
|---|---|---|
| 2702 | 37.62 | 34.7 |
| 281D | n/a | n/a |
| 281E | n/a | n/a |
| 281F | n/a | n/a |
| 281G | n/a | n/a |
| 281B | n/a | n/a |
| 281A | n/a | n/a |
| 2802 | 37.58 | 34.81 |
| 281I | n/a | n/a |
| 281H | n/a | n/a |
| 2805 | n/a | n/a |
| 3901 | 41.42 | 39.41 |
| 2902 | n/a | n/a |
| 291D | n/a | n/a |
| 291C | n/a | n/a |
| 391B | n/a | n/a |
| 291E | n/a | n/a |
| 291J | n/a | n/a |
| 2901 | n/a | n/a |
| 291K | n/a | n/a |
| 291I | n/a | n/a |
| 291F | n/a | n/a |
| 291N | n/a | n/a |
| 291L | n/a | n/a |
| 0001 | 37.62 | 35.36 |
| 001F | n/a | n/a |
| 001Q | n/a | n/a |
| 1004 | 38.56 | 35.31 |
| 1007 | n/a | n/a |
| 1008 | n/a | n/a |
| 1005 | n/a | n/a |
| 1006 | n/a | n/a |
| 1001 | n/a | n/a |
| 1002 | n/a | n/a |
| 201B | n/a | n/a |
| 001B | n/a | n/a |
| 001O | n/a | n/a |
| 001E | n/a | n/a |
| 0005 | n/a | n/a |
| 1703 | n/a | n/a |
| 0705 | n/a | n/a |
| 0704 | n/a | n/a |
| 1701 | n/a | n/a |
| 2804 | 37.08 | 34.74 |
| 1801 | n/a | n/a |
| 281C | n/a | n/a |
| 2806 | n/a | n/a |
| 0801 | n/a | n/a |
| 1904 | 37.87 | 34.92 |
| 0904 | n/a | n/a |
| 0903 | n/a | n/a |
| 1901 | 38.02 | 34.97 |
| 0902 | n/a | n/a |
| 0901 | n/a | n/a |
| 991C | n/a | n/a |
| 291A | n/a | n/a |
| 991B | n/a | n/a |
| 1903 | 38.22 | 35.08 |
| 991A | n/a | n/a |
| 291G | n/a | n/a |
| 1905 | n/a | n/a |
| 291H | n/a | n/a |
| 1003 | 38.16 | 35.14 |
| 901L | n/a | n/a |
| 001C | n/a | n/a |
| 001D | n/a | n/a |
| 901I | n/a | n/a |
| 901H | n/a | n/a |
| 901G | n/a | n/a |
| 9003 | n/a | n/a |
| 001A | n/a | n/a |
| 9002 | n/a | n/a |
| 901B | n/a | n/a |
| 901M | n/a | n/a |
| 001P | n/a | n/a |
| 901O | n/a | n/a |
| 901C | n/a | n/a |
| 9004 | n/a | n/a |
| 901N | n/a | n/a |
| 901K | n/a | n/a |
| 901J | n/a | n/a |
| 0003 | n/a | n/a |
| 0004 | n/a | n/a |
| 9005 | n/a | n/a |
| 861A | n/a | n/a |
| 961A | n/a | n/a |
| 961B | n/a | n/a |
| 0703 | n/a | n/a |
| 0701 | n/a | n/a |
| 0702 | n/a | n/a |
| 2701 | n/a | n/a |

| Manhole Reference | Manhole Cover Level | Manhole Invert Level |
|---|---|---|
| 2602 | 37.39 | 34.56 |
| 271A | n/a | n/a |
| 2603 | 37.91 | 35.53 |
| 2601 | 36.9 | 34.6 |
| 3601 | 39.22 | 34.5 |

**The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.**

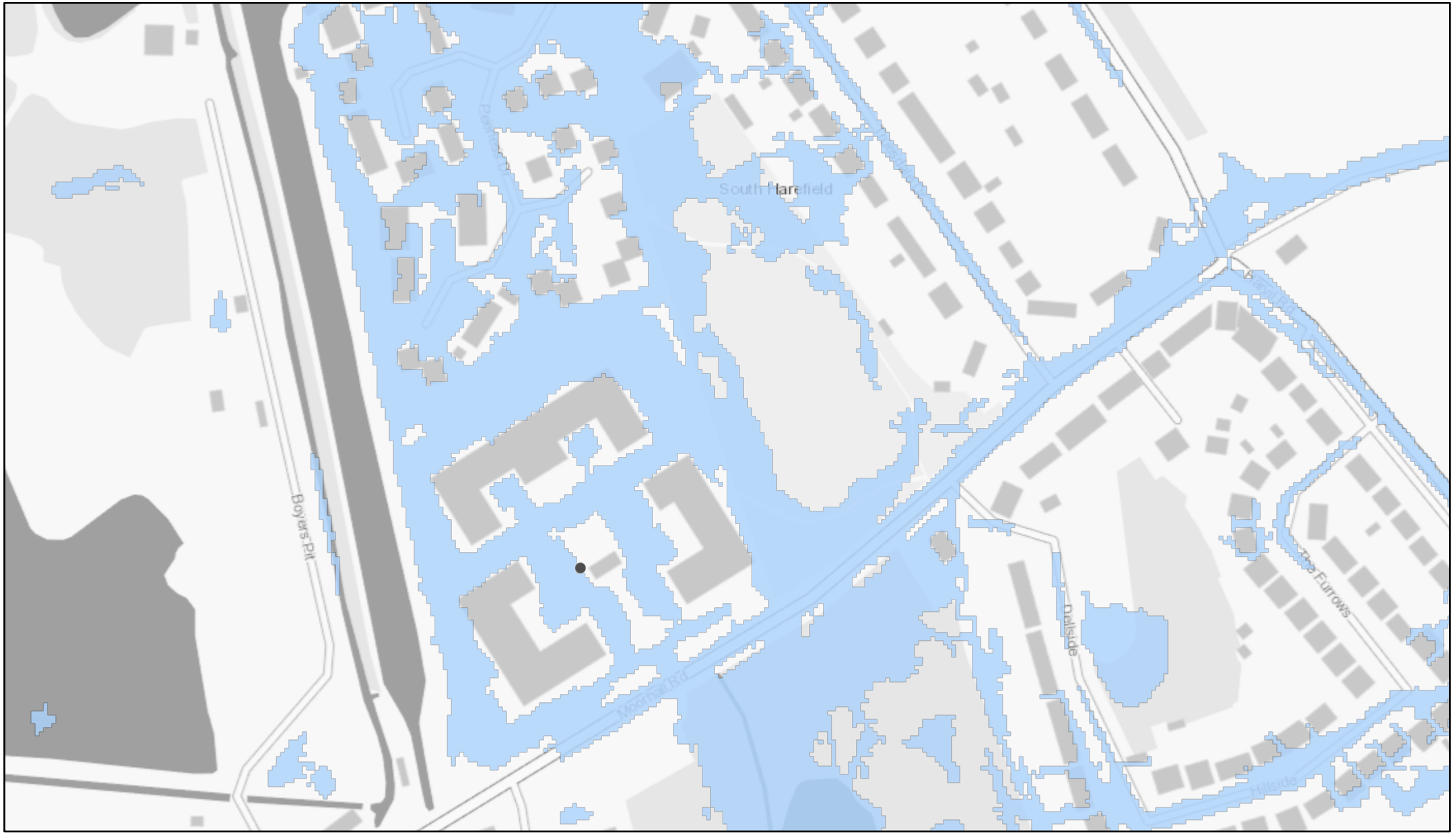
# Appendix: F – Superseeded West London SFRA Flood Maps



TRANSPORT PLANNING ■ HIGHWAYS AND DRAINAGE ■ FLOOD RISK ■ ENERGY AND SUSTAINABILITY ■ AIR QUALITY
1st Floor Millers House, Roydon Road, Stanstead Abbotts, SG12 8HN. T: 01920 871 777 E: contact@eastp.co.uk W: www.eastp.co.uk

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# 0.1% Extent




18/05/2021, 14:40:51

1:2,500

0 0.02 0.04 0.08 mi

0 0.03 0.07 0.13 km

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Borough Boundary

Study Area Boundary

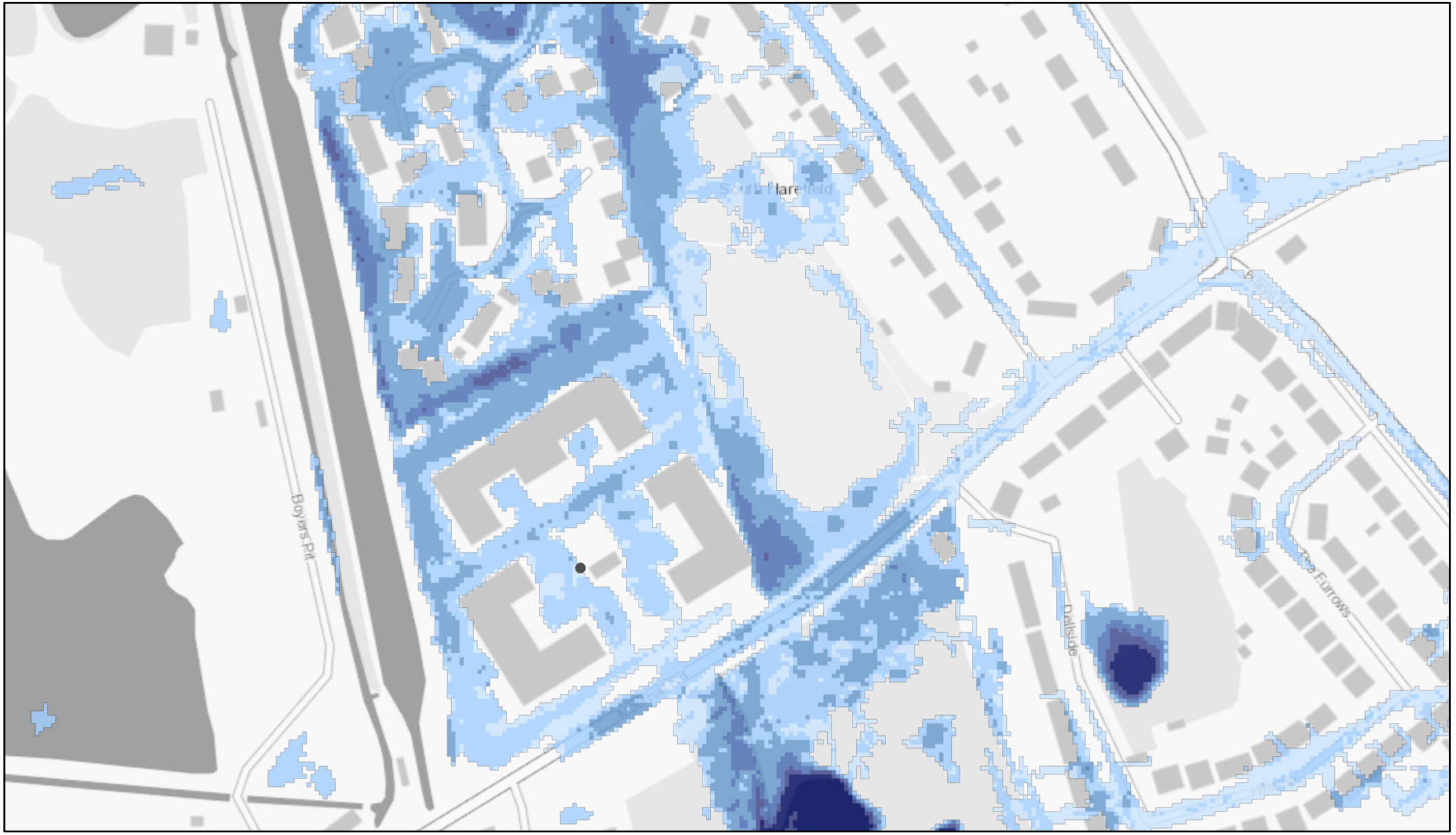
uFMfSW 1 in 1000 flood extent

Risk_of_Flooding_from_Surface_Water_Extent_0_1_percent_annual_chance

London Boroughs of Brent, Barnet, Harrow, Hillingdon, Hounslow and Ealing

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# 0.1% Depth




18/05/2021, 14:42:10

Borough Boundary

Study Area Boundary

DEPTH (Six bands)

- Below 150mm
- 150-300mm
- 300-600mm
- 600-900mm
- 900-1200mm
- Over 1200mm

Risk_of_Flooding_from_Surface_Water_Depth_0_1_percent_annual_chance

1:2,500

0 0.02 0.04 0.08 mi

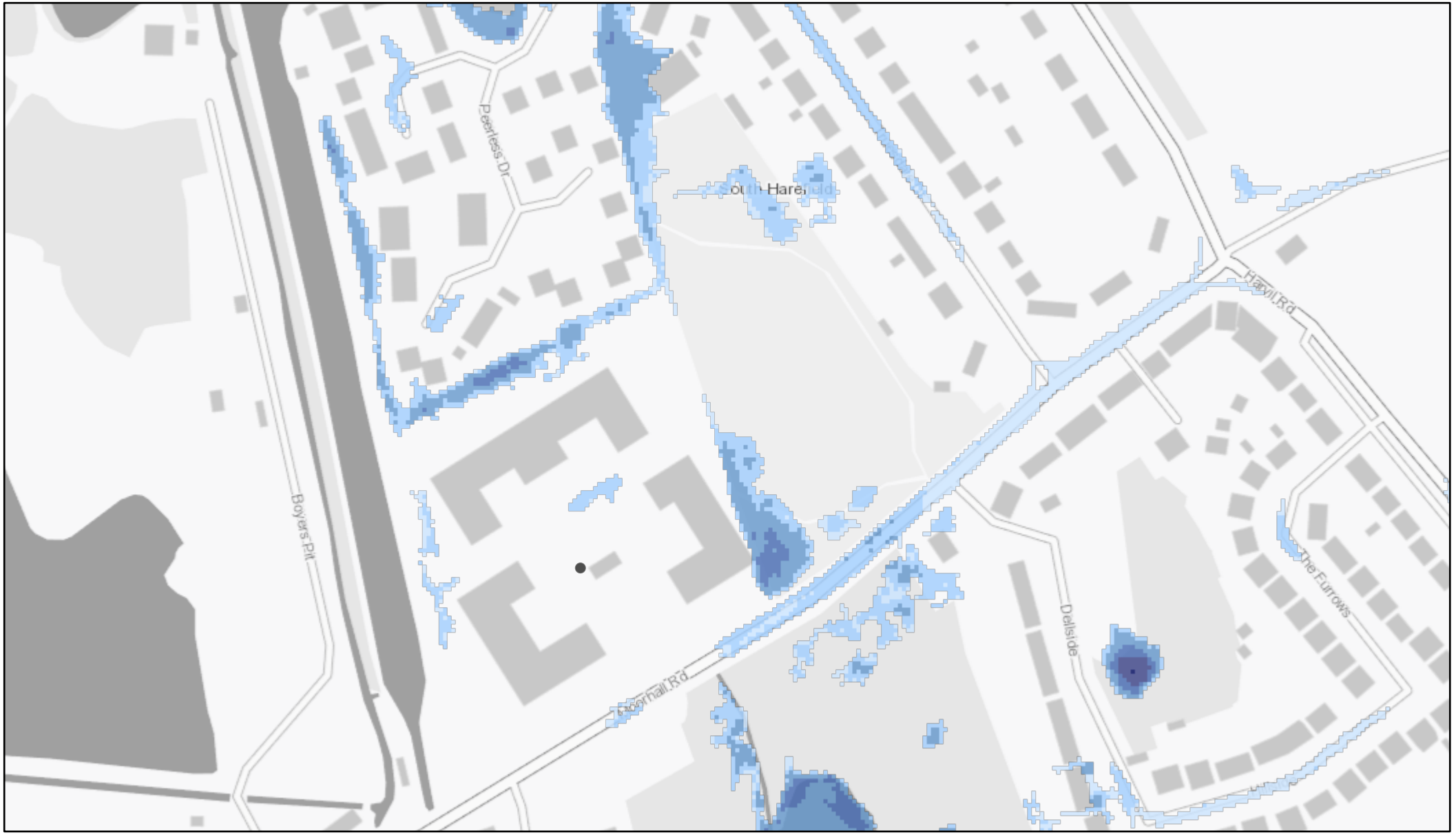
0 0.03 0.07 0.13 km

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# 1% Depth




18/05/2021, 14:42:37

Borough Boundary

Study Area Boundary

DEPTH (Six bands)

- Below 150mm
- 150-300mm
- 300-600mm
- 600-900mm
- 900-1200mm
- Over 1200mm

Risk_of_Flooding_from_Surface_Water_Depth_1_percent_annual_chance

1:2,500

0 0.02 0.04 0.08 mi

0 0.03 0.07 0.13 km

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# 1% Extent




18/05/2021, 14:40:25

Borough Boundary

Study Area Boundary

uFMfSW 1 in 100 flood extent

Risk_of_Flooding_from_Surface_Water_Extent_1_percent_annual_chance

1:2,500

0 0.02 0.04 0.08 mi

0 0.03 0.07 0.13 km

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# 3.3% Depth




18/05/2021, 14:39:04

Borough Boundary

Study Area Boundary

DEPTH (Six bands)

- Below 150mm
- 150-300mm
- 300-600mm
- 600-900mm
- 900-1200mm
- Over 1200mm

Risk_of_Flooding_from_Surface_Water_Depth_3_3_percent_annual_chance

1:2,500

0 0.02 0.04 0.08 mi

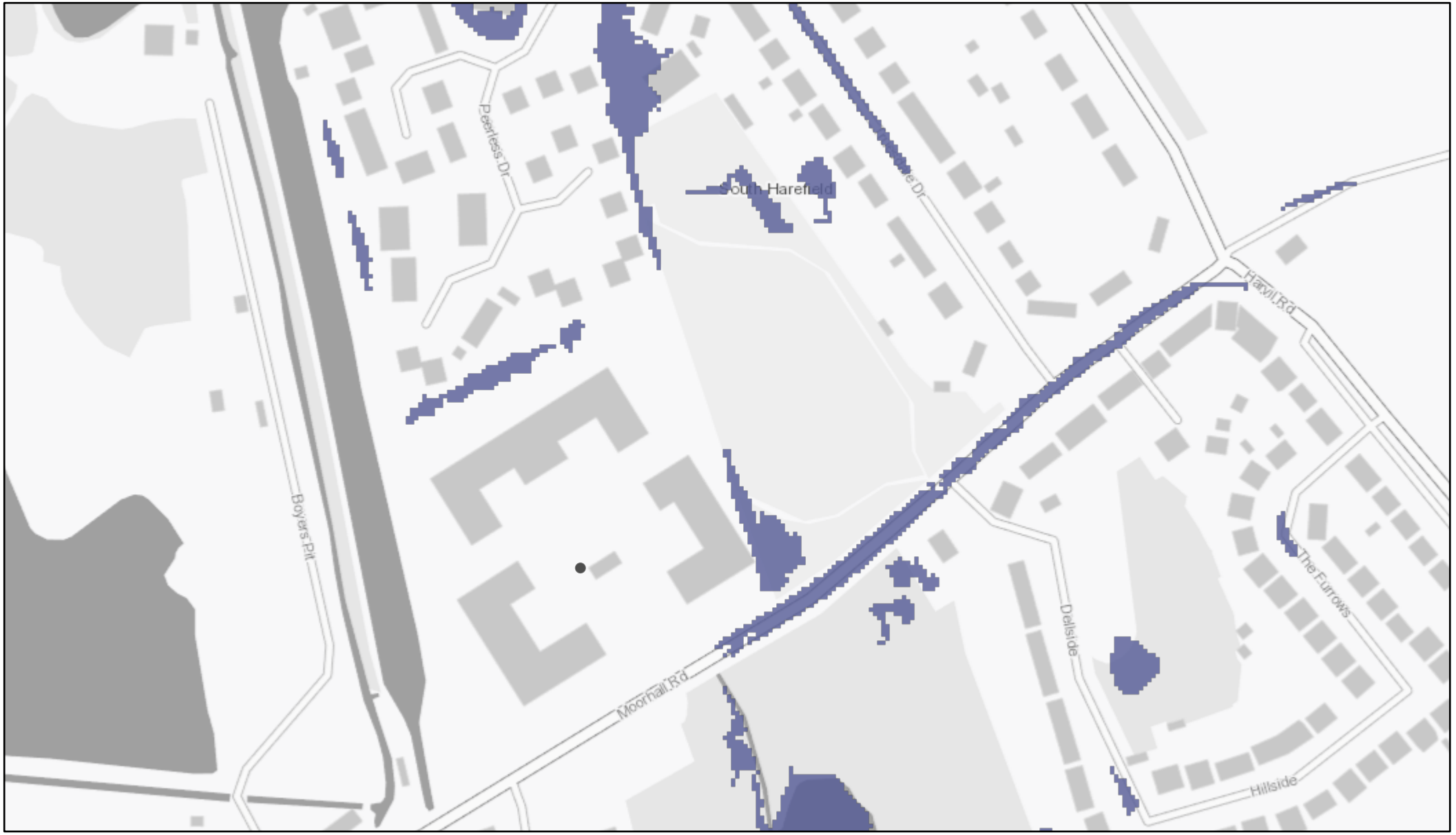
0 0.03 0.07 0.13 km

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# 3.3% Extent




18/05/2021, 14:39:51

1:2,500

0 0.02 0.04 0.08 mi

0 0.03 0.07 0.13 km

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Borough Boundary

Study Area Boundary

uFMfSW 1 in 30 flood extent

Risk_of_Flooding_from_Surface_Water_Extent_3_3_percent_annual_chance

London Boroughs of Brent, Barnet, Harrow, Hillingdon, Hounslow and Ealing

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