Flood Risk & SuDS Drainage Strategy

November 2023

EAS

25-49 Victoria Road

Ruislip Manor

Savills

Document History

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1.2 The content of this report is based on information available as of November 2023, the validity of the statements made may therefore vary over time as planning guidance / policies and the evidence base change.

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2 Introduction

2.1 EAS have prepared this Flood Risk Assessment (FRA) and SuDS Drainage Strategy to accompany a planning application for the proposed roof extensions at 2nd and 3rd floor level to provide 9 additional dwellings, alongside rear deck access and private amenity space, at 25-49 Victoria Road, Ruislip Manor, Hillingdon, HA4 9AB.

2.2 The site location plan is included in **Appendix A** and the proposed development plans are in **Appendix B**. The site consists of 13 commercial units with residential apartments located above.

2.3 The site is shown to be in Flood Zone 1 on the EA Flood Map for Planning. Due to the presence of 'high' surface flood risk, a Flood Risk Assessment is required to accompany a planning application to meet the requirements of the National Planning Policy Framework (NPPF). All sources of flooding have been evaluated in this report.

2.4 The contents of this FRA and drainage report are based on the advice set out in the National Planning Policy Framework (NPPF) published in July 2021 and Annex 3: Flood risk vulnerability classification, also obtained from the NPPF.

2.5 This report is based on the Environment Agency Flood Maps and detailed modelled data, geology mapping, OS mapping, topographical survey, Strategic Flood Risk Assessment and local policy.

2.6 This document includes the following sections:

2.7 Section 3 - describes the relevant policy;

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

2.9 Section 5 - outlines potential sources of flooding;

2.10 Section 6 – includes suitable flood warning measures;

2.11 Section 7 – details the proposed drainage strategy;

2.12 Section 8 – details the maintenance schedule for the proposed drainage strategy;

2.13 Section 9 - concludes the report.

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3 Policy Context

Introduction

3.1 This section sets out the policy context. This report is based on the advice set out in the National Planning Policy Framework (NPPF) published in July 2021 and the Planning Practical Guidance (PPG) updated in August 2022.

3.2 Paragraph 167 footnote 55 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."

3.3 The flood zones are defined as:

- Flood Zone 1 - less than a 0.1% (1 in 1000) annual probability of river or tidal flooding.
- Flood Zone 2 - between a 0.1% and 1% (1 in 1000 and 1 in 100) annual probability of river flooding; or between a 0.1% and 0.5% (1 in 1000 and 1 in 200) annual probability of flooding from tidal sources.
- Flood Zone 3a- This zone comprises land assessed as having a 1% (1 in 100) or greater annual probability of river flooding; and for tidal flooding at least a 0.5% (1 in 200) annual probability of flooding from tidal sources.
- Flood Zone 3b - This zone comprises land where water has to flow or be stored in times of flood. This classification is usually classified as land which had a 3.33% (1 in 30) annual probability of flooding.

3.4 Paragraph 159 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 160 of the National Planning Policy Framework (NPPF) sets out how:

"Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards".

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3.6 Paragraphs 169 NPPF discusses the application of sustainable drainage systems:

"Major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate. The systems used should:

Take account of advice from the lead local flood authority;

Have appropriate proposed minimum operational standards;

Have maintenance arrangements in place to ensure an acceptable standard of operation of the lifetime of the development; and

Where possible, provide multifunctional benefits."

3.7 The Flood Map for Planning shows the site to be located entirely in Flood Zone 1, at 'low' risk of flooding from fluvial sources. The EA Flood Map has been enclosed in **Appendix C**. This is considered to be an area with less than a 0.1% annual chance of flooding.

Local Policy

The London Plan 2021

3.8 The London Plan is the spatial development strategy for London. The London Plan sets out the frameworks for development in London for the next 20-25 years.

3.9 Policy SI 12 Flood Risk Management includes but is not limited to:

"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.

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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.

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."

3.10 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."

3.11 The proposed drainage strategy below complies with the requirements set out in Policy SI13.

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 EM6: Flood Risk Management states:

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"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."

3.14 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

3.15 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.

3.16 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.

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 3bwill 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.

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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."

3.17 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 rain water 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

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."

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West London Strategic Flood Risk Assessment (SFRA) 2018

3.18 The West London Boroughs of Barnet, Brent, Ealing, Harrow, Hillingdon and Hounslow commissioned the production of a joint Level 1 SFRA, to provide an update to existing borough specific SFRAs, which were predominantly completed in 2008.

3.19 Paragraph 5.3.2. of the SFRA sets out what is expected from a site-specific drainage strategy:

"1. Ensuring that land within development sites are safeguarded for potential flood mitigation use through the active consideration of predicted flood mapping from all sources at the master planning stage.

2. Developers must submit completed Flood Risk Assessments and Drainage Strategy (with supporting Checklists) to demonstrate compliance with requirements detailed in Sections 2 and 4 for all Major development proposals.

3. Drainage Strategies with the supporting checklist must be provided for all Minor developments and for Change of Use proposals if they impact the proposed development's current drainage regime. Site-specific Flood Risk Assessments with the accompanying checklist must be provided for Minor developments and Change of Use proposals if they:

- *Are outside of Flood Zone 1.*
- *Are inside an EA defined area with a critical drainage problem.*
- *Change the existing footprint of the building(s).*
- *Are at risk from any other sources of flooding.*

4. As part of a submitted development proposal, developers must provide evidence to the LPA to demonstrate that the Sequential Test has been undertaken. Developers must also provide evidence that an on-site sequential approach has been taken to direct vulnerable uses to the lowest risk parts of the development site.

5. Where development is proposed for sites within Flood Zones 3a (surface water), evidence must be submitted to demonstrate that:

- *There will be no increase of flood risk to properties outside of the development boundary.*
- *Consultation has been undertaken with the relevant LLFA to consider potential wider impacts or benefits the development could have on the local surface water catchment.*
- *Relevant strategic documents (such as the Thames CFMP, LFRMS and SWMP) have been reviewed.*
- *The LLFA has been consulted to determine if the development should contribute to any catchment wide flood alleviation schemes being considered by the LLFA (such as a S106 contribution to wider catchment flood risk management infrastructure).*

6. Development should maximise the use of open spaces to ensure spaces for water to flow during times of flood.

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7. Developments that seek to increase impermeable surfaces within a site, including small areas such as front gardens, will be resisted where appropriate.

8. Developers should aim to incorporate permeable paving in hardstanding areas to provide flood mitigation benefits in new and existing developments. In areas where the geology does not facilitate infiltration (e.g. areas underlain with clay), permeable paving should be underlain with gravel or feature an underground storage system.

9. Development proposed in 'dry islands' should be designed for safe access and egress in a flood event. Dry islands are considered as flood risk areas due to the potential loss of important local services during flood events and lack of safe access routes. They require safe access and egress routes to be developed for the lifetime of the property, factoring in the impacts of climate change."

3.20 The Fluvial and Tidal Flood Risk Web Map for the West London SFRA shows the site it within Flood Zone 1.

3.21 The Surface Water Flood Risk Web Map for the West London SFRA shows the affected within the extent of a 3.3%, 1% and 0.1% annual probability surface water flood event.

3.22 The Sewer, Groundwater & Artificial Flood Risk Web Map for the West London SFRA shows the site is located within an area which has 1-20 recorded sewer flooding incidences recorded by Thames Water as of 2017.

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4 Existing Site Assessment

Site Description

4.1 The site is located at 25-49 Victoria Road, Ruislip Manor, Hillingdon, HA4 9AB and covers an area of 0.25 ha. A location plan is included at **Appendix A.**

4.2 The site is bounded to the north by a commercial unit with a railway line beyond, Victoria Road to the west, Linden Avenue to the south and to the east by a car park.

4.3 The proposed development consists of roof extensions at the 2nd and 3rd floor level to deliver 9 additional dwellings, alongside rear deck access and private amenity space. The proposed development plans are included in **Appendix B.**

Local Watercourses

4.4 The River Pinn, an EA 'main river', is located approximately 1km to the north and the Yeading Brook, also an EA 'main river', is located approximately 1km to the south.

Site Levels

4.5 A topographical survey of the site has been undertaken at the site with the levels obtained from the survey shown within the proposed development plans included at **Appendix B**. The topographical survey shows that levels fall from east to west across the site with levels rising to a maximum of circa 46.00mAOD along the eastern boundary of the site and falling to lows of circa 44.60mAOD to the west of the site.

Geology

4.6 The online British Geological Survey (BGS) resource (www.bgs.ac.uk) shows the local area to have no superficial deposits. The bedrock layer is comprised of Lambeth Group – clay, silt and sand.

4.7 There are no local borehole records.

4.8 With an underlying geology of the Lambeth Group with no superficial deposits recorded, it is not anticipated that surface water disposal via infiltration would be viable at this site.

Sewers

4.9 Thames Water sewer record mapping has been acquired and shows a number of surface and foul water sewer runs within both Victoria Road and Shenley Avenue adjacent to the site.

4.10 The Thames Water surface water sewers range from 300-450mm in diameter and flow in southernly direction, whilst the foul water sewers range from 175-225mm and also flow towards the south.

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4.11 The Thames Water Asset Location Plan is included in **Appendix D**.

Existing Drainage

4.12 The site is currently developed with existing 1 storey retail units with further 1-2 storeys of residential units.

4.13 It is assumed that surface water runoff from the existing building is collected via rainwater downpipes. The collected runoff is then directed unrestricted to the existing Thames Water surface water sewers within the vicinity of the site.

4.14 It is also assumed that road gulleys within the existing service road to the rear of the existing building collect surface water runoff from the service road and other hardstanding to the rear of the site. The surface water runoff is then also directed unrestricted to the existing Thames Water surface water sewers near the site.

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5 Potential Sources of Flooding

Fluvial

5.1 A copy of the Environment Agency's Flood Map for Planning is enclosed in **Appendix C**. This shows that the site is located in Flood Zone 1. Flood Zone 1 indicates a less than 1 in 1000 annual probability of flooding from a fluvial of tidal sources.

5.2 The risk of flooding from fluvial sources is considered 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 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 West London SFRA Surface Water Flood Risk Web Map and the EA surface water flood maps show the extent of surface water flooding and depth.

5.5 The SFRA Surface Water Flood Risk Web Map indicates that during a 3.3%, 1% and 0.1% annual probability event, the site is within the surface water flood extent. The risk of surface water flooding according to the EA long term flood risk is considered high along the northern area of the site. This means there is chance of flooding greater than 3.3% each year. The EA's surface water flood map is included in **Appendix E** (Source: https://flood-warning-information.service.gov.uk/long-term-flood-risk/map)

5.6 In order to accurately determine the extent of the site at risk from surface water flooding, the 0.1% (most severe event) annual probability flood map has been overlaid onto the proposed site layout, this is included at **Appendix F.**

5.7 Once the mapping has been overlaid it can be seen that the surface water flood risk is located within the north-west corner of the site and extends along the northern boundary of the site. this area covers approximately 6 of the existing retail units, the remaining 6 retail units are not within the surface water flood zone.

5.8 The overlay shows that the surface water flood extent within the site mainly has a depth of 0-300mm with areas of 300-600mm & 600-900mm deep also shown.

5.9 The existing retail use on the ground floor of the 6 units within the surface water flood zone is proposed to remain unchanged as part of the development.

5.10 Residential dwellings are considered to be a 'more vulnerable' Flood Risk Classification as such they are only deemed suitable within fluvial Flood Zone 3 if they pass both the Sequential and Exception test. Therefore, it can be considered that they would require similar scrutiny within an

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area at high risk of surface water flooding. However, as no residential units are proposed on the ground floor, with the proposed units as part of the vertical extension proposed on the second and third floors, it can be shown that the future residents will remain safe, for the lifetime of the development.

5.11 As the maximum surface water flood depth for the most severe event is shown to be a maximum of 900mm all proposed residential units will be significantly above the highest flood level. Residents will therefore be able to seek safe refuge within their homes until such time that the flood event has passed.

5.12 Access to the residential units is via external staircases to the rear of the existing building. It can be seen from the surface water flood risk overlay that the majority of these staircases are not located within an area at risk of surface water flooding. As such, most residents of the existing and proposed residential units will have safe access and egress from their dwellings, and to the rear access road, during a surface water flood event. Residents of the dwellings served by the staircases shown to be located within the flood zone should be notified and told to remain within their homes until the flood event has subsided.

5.13 Given all residents are able to seek safe refuge within their homes during a flood event and most residents will have access to safe access and egress from the site during a surface water flood event, no mitigation measures are required for the proposed residential units, other than suitable flood warning measures as discussed in Section 5 of this report.

Groundwater

5.14 The MAGIC Map website (https://magic.defra.gov.uk/MagicMap.aspx) shows that the site does not lie within any Source protection Zone. Therefore, the site is will not affect any protected groundwater source.

5.15 The Groundwater Vulnerability Map on the MAGIC Map website shows the site to be in an area with medium groundwater vulnerability. Medium groundwater vulnerability is defined as areas that offer some groundwater protection. Intermediate between high and low vulnerability.

5.16 The Sewer, Groundwater & Artificial Flood Risk Web Map for the West London SFRA shows the site is located within area that has less than 25% susceptibility to groundwater flooding.

5.17 Given the above, and that development is in the form of a roof top extension, the risk of flooding from groundwater is considered to be low.

Artificial

5.18 The EA long term risk map displays the risk from reservoirs. The site is not shown to be in a reservoir flood risk area.

5.19 The risk of flooding from artificial sources is considered to be low.

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Sewer

5.20 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.

5.21 The Sewer, Groundwater & Artificial Flood Risk Web Map for the West London SFRA shows the site is located within an area which has 1-20 recorded sewer flooding incidences recorded by Thames Water as of 2017.

5.22 Despite some evidence of local sewer flooding incidents, as the development is in the form of a roof top extension, the risk of flooding from sewers is considered to be low.

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6 Flood Warning Measures

6.1 The site is located outside of an EA Flood Warning Area, it is therefore proposed that the residents sign up to receive MET office weather warnings via https://service.govdelivery.com/accounts/UKMETOFFICE/subscriber/new

6.2 Should a severe weather warning for the local area be received, residents should be aware of the potential surface water flood risk on and off the site. During a severe weather warning or flood event residents should exercise caution when entering or exiting the site and be aware of any flood water within the site. Residents should be advised not to enter flood water and instead remain within their homes should flood water be within their access to and from the site until this subsides.

6.3 It is proposed a short Flood Warning Statement is to be provided to all residents of the development as part of the 'Welcome Pack', when they move into the building. This will set out the surface water flood risk and what actions to take in the event of a flood. This will include advice on the safe access and egress routes as noted below.

6.4 During a flood event residents should access and egress the site via the existing access road to the rear of the building. Residents should then head east along Linden Avenue.

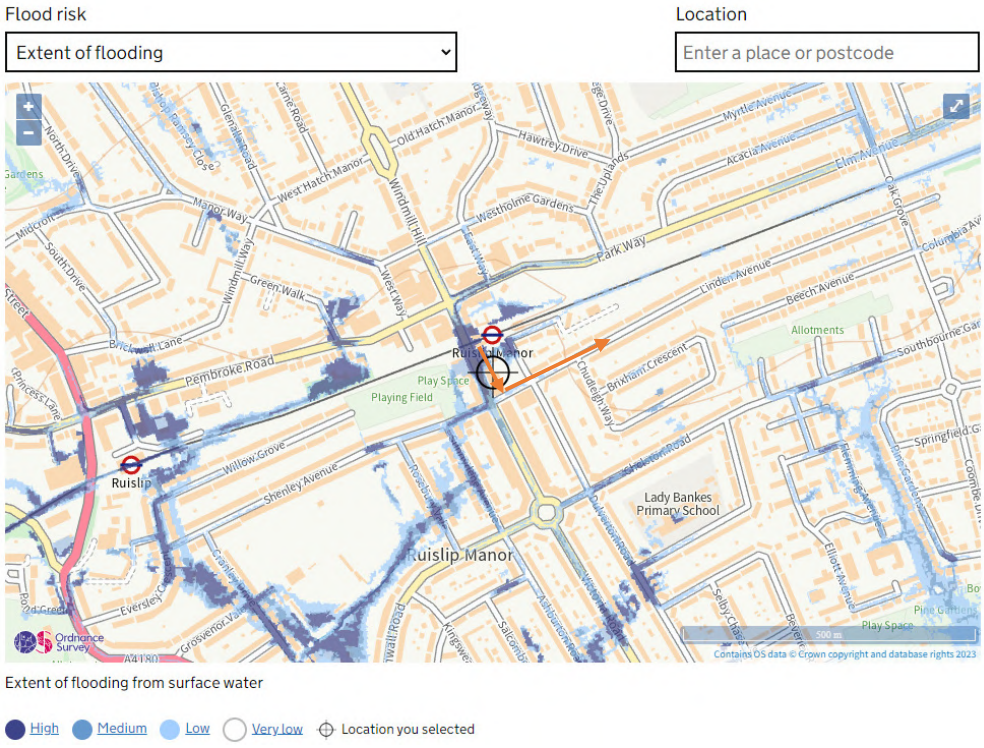

Figure 6.1: Recommended access and egress route during flood event

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7 Proposed Drainage Strategy

7.1 As the proposed development consists of a vertical extension to the existing building only, with no increase in impermeable area proposed, the vertical extension will utilise the existing drainage system at the site. This will be achieved by extending the existing rainwater downpipes to the new roof level following the vertical extension. Surface water runoff from the vertical extension will be directed to the existing outfall to the Thames Water Public Surface Water sewer to match the current arrangement.

7.2 At the detailed design stage, the existing drainage system will be surveyed in order to confirm the condition of the existing system and also its capability to manage surface water runoff from the proposed vertical extension. This survey will include entering discussions with Thames Water to ensure the surface water sewer in which the existing drainage outfalls to can adequately manage the runoff from the vertical extension.

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8 Maintenance of Development Drainage

8.1 The maintenance of the existing drainage system and the proposed extension to the system will remain private, and it is recommended a maintenance company be appointed to manage the drainage features.

8.2 Regular inspections of the system should be made, to ensure it is effective throughout the lifetime of the development and do not become blocked or damaged over time.

8.3 It is recommended that during the first 12 months of operation all SuDS and drainage features are visually inspected on a monthly basis to determine any seasonal patterns this includes all SuDS features, inspection chambers, inlets and outlets.

Manholes, Sewers and Inspection Chambers

8.4 All inspection chambers and manholes, including the orifice plate/hydrobrake chambers, should be inspected on a bi-annual basis with further visual checks carried out throughout the year, such as in November after the heaviest leaf-fall has occurred.

8.5 Should a blockage occur at any time, it is advised to seek professional help to jet the drainage system to clean and clear the system.

Gutters and Downpipes

8.6 It is good practice to ensure that these are occasionally inspected to ensure they are in good order and free of leaves & debris. Once every 6 months should be sufficient.

TRANSPORT PLANNING ■ HIGHWAYS AND DRAINAGE ■ FLOOD RISK
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9 Conclusions

9.1 This Flood Risk Assessment (FRA) and SuDS Report has been prepared to accompany an application for a proposed vertical extension to an existing building at 25-49 Victoria Road, Ruislip Manor, Hillingdon, HA4 9AB.

9.2 The proposed vertical extension consists of extending the existing building by an additional one to two storeys resulting in a final 3-4 storey building. The proposed extension will add an additional 9 residential dwellings across the second and third floor.

9.3 The development site is located within Flood Zone 1 at low risk of fluvial flooding.

9.4 The north west corner of the proposed development is shown to be within an area with a high, medium, and low risk of surface water flooding. During the low risk event, surface water flood depths were mainly shown to be 0-300mm deep with areas of 300-600mm and 600-900mm also shown within the site.

9.5 The existing building consists of retail use across the ground floor. Retail use is considered a less vulnerable land use and is therefore suitable to be used within flood risk zones. The retail units are proposed to remain unchanged as part of the development. The ground floor use of the building is therefore considered suitable as per the existing arrangement and no mitigation measures are required for the ground floor use.

9.6 The existing and proposed residential use at the site is across the first to fourth floor only. As the maximum depth of surface water flooding within the site is shown to be 900mm all residential units will be significantly higher than the highest flood level. As such, residents will be able to seek safe refuge within their homes during a flood event.

9.7 Access to the residential units is via external staircases to the rear of the existing building. These staircases are located outside of the surface water flood extents. As such, residents are able to access and egress from the site during a flood event.

9.8 No mitigation measures are therefore required for the existing or proposed residential units, other than suitable flood warning measures..

9.9 Flood risk from all other sources was deemed low.

9.10 The proposed vertical extension will not result in an increase in impermeable area within the site. As such, the roof area of the proposed extension will drain via the existing drainage system at the site. This will be achieved by extending the existing rainwater downpipes to the new roof line.

9.11 In conclusion, the proposals have been shown to be policy compliant on flood risk and SuDS grounds.

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Appendices

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Appendix: A - Location Plan

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SITE LOCATION
Ruislip
Eastcote
Eastcote Road
Park Way
Elm Avenue
Eastern Avenue
Pembroke Road
Kingsend
Ickenham Road
Wood Lane
West Ruislip
Ruislip Golf Course
B466
B467
RN1
Field End Road
West End Road
Torrington Road
Victoria Road
Bessingby Playing Fields
New Pond Playing Fields
Field End Junior School
Pinner High School
Warrender Park
King's College Playing Fields
River Pinn
Yeading Brook
Chiltern Main Line
London Borough of Hillingdon
London Borough of Harrow

EAS

Appendix: B – Proposed Development Plans

TRANSPORT PLANNING ■ HIGHWAYS AND DRAINAGE ■ FLOOD RISK
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all dimensions to be checked on site and architect notified of any discrepancies prior to commencement.
do not scale.

notes:

Layouts based on topographical survey produced by others

0 2 4 6 8 10 12

scale 1:200 metres

existing trees to be retained

existing trees to be removed

applicaton | ownership boundary

soft landscaping | existing vegetation to be retained

soft landscaping | proposed

existing buildings to be retained

existing buildings, structures and alike to be demolished

Cycling provision | 28no

existing residential @ 79% provision - 15no spaces
proposed residential @ 100% provision - 13no spaces
(policy requirement @ 1sp/1-2b | 2sp/3b)

Car parking

car-free development

Refuse provision | 5no bins @ 4,700l

100% allocation for both existing and proposed residential dwellings
(policy requirement @ 4,190l based on BS 5906:2005 guidance - 100l/1b, 170l/2b and 240l/3b)

commercial bins stored within individual plots

rev:	date:	comment(s):	name:	check:

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PLANNERS.
PROJECT MANAGERS.
LANDSCAPE ARCHITECTS.
WE ARE IDP.

status:	**PLANNING** 3
client:	Urbanhold Ltd
job:	25-49 Victoria Road, Ruislip Manor
title:	**layouts** | site plan (ground floor)
drawn:	fF date: May 23
checked:	fF scale @ a3: 1:200
job no:	**C4163** drg no: **010**

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www.**we**are**idp**.com

all dimensions to be checked on site and architect notified of any discrepancies prior to commencement.
do not scale.

notes:

Layouts based on topographical survey produced by others

0 2 4 6 8 10 12

scale 1:200 metres

existing trees to be retained

existing trees to be removed

applicaton | ownership boundary

existing buildings, structures and alike to be demolished

existing buildings to be retained

existing dwellings | no changes to the external building envelope and no internal remodelling

existing dwellings | no changes to the external building envelope; internal remodelling required

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status:	**PLANNING** 3
client:	Urbanhold Ltd
job:	25-49 Victoria Road, Ruislip Manor
title:	**layouts** | proposed first floor
drawn:	fF date: May 23
checked:	fF scale @ a3: 1:200
job no:	**C4163** drg no: **011**

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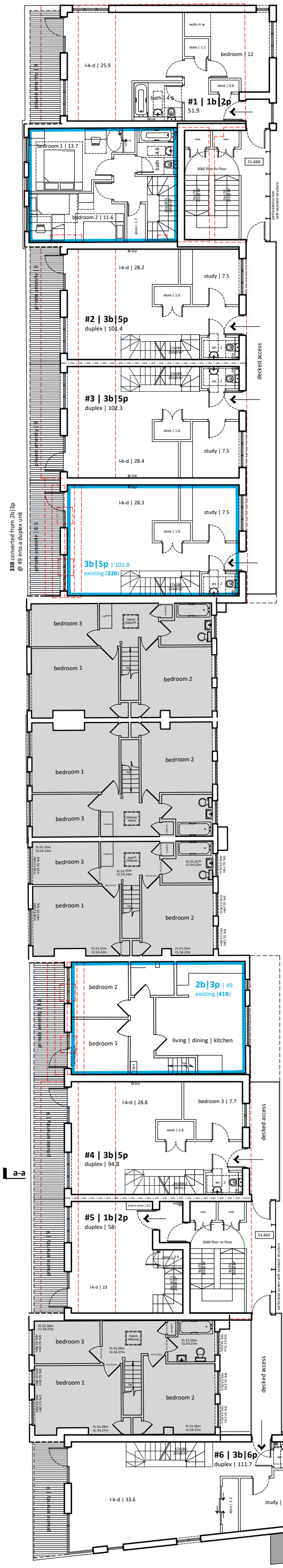
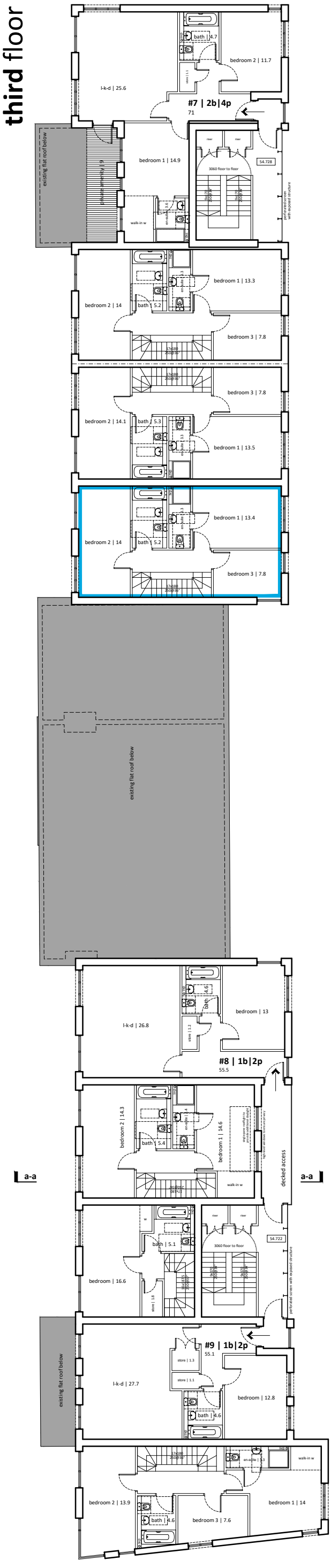




all dimensions to be checked on site and architect notified of any discrepancies prior to commencement.
do not scale.

notes:

Layouts based on topographical survey produced by others

0 2 4 6 8 10 12

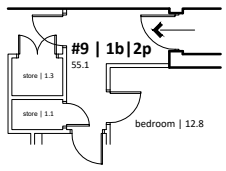
scale 1:200 metres

3b|5p | 99
existing duplex (**39A**)

existing dwellings | no changes to the external building envelope and no internal remodelling

2b|3p | 49
existing (**41B**)

existing dwellings | no changes to the external building envelope; internal remodelling required



proposed dwellings

Schedule of accommodation

Existing accommodation | 14no
1no 1b | 8no 2b | 5no 3b
- 25A | 2b|3p @ 59
- 27A | 2b|4p duplex @ 79.1 (remodelled)
- 29A | 2b|3p @ 58
- 31A | 2b|3p @ 59
- 33A | 2b|3p @ 55 (remodelled)
- 35A | 3b|5p duplex @ 99
- 37A | 3b|5p duplex @ 99
- 39A | 3b|5p duplex @ 99
- 41A | 2b|3p @ 57
- 43A | 2b|3p @ 58
- 45A | 1b|1p @ 37 (remodelled)
- 47A | 3b|5p duplex @ 99
- 33B | 3b|5p @ 101.8 (remodelled into a duplex)
- 41B | 2b|3p @ 49

Proposed accommodation | 9no
4no 1b | 1no 2b | 4no 3b
- #1 | 1b|2p @ 51.9
- #2 | 3b|5p duplex @ 101.4
- #3 | 3b|5p duplex @ 102.3
- #4 | 3b|5p duplex @ 94.8
- #5 | 1b|2p duplex @ 58
- #6 | 3b|6p duplex @ 111.7
- #7 | 2b|4p @ 71
- #8 | 1b|2p @ 55.5
- #9 | 1b|2p @ 55.1

rev:	date:	comment(s):	name:	check:

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status:	**PLANNING**	3
client:	Urbanhold Ltd	
job:	25-49 Victoria Road, Ruislip Manor	
title:	**layouts** | proposed second & third floor	
drawn:	fF	date: May 23
checked:	fF	scale @ a3: 1:200
job no:	**C4163**	drg no: **012**

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0 2 4 6 8 10 12

scale 1:200 metres

LEGEND | TBC

elevation 1

6 2-3mm thick corten steel cladding (naturally weathered, brushed and wiped clean); crystal clear one-part air cured coating for corten and bare carbon steel (Bromoco CT-7571-T Corten Sealer or similar approved) to be applied to all exposed panels to ensure colour/texture protection and maintenance free application

Fixing details to allow for either flat panels faced-fixed (external recesses) or recessed fixed panels folded top and bottom to complete a tray (dome head mill finish stainless steel fixings); external shadow gap joints to vary between 5-25mm to accentuate specific panels (of varying sizes), which are to be laid in random manner to ensure vibrancy

Some of the specified panels are patterned with small random circular incisions and perforations (boundary fence along Victoria Road, where adjacent to the school)

PENDING | TBC

7 Multi-textured facing brickwork (colour: multi-grey) laid in flemish bond with 1/2 and 3/4 bat junctions (unless stated otherwise) applied as the predominant elevational material to the mews development; parapet walls are achieved with soldier coursing (2no layers half-height bricks) and slim-profile aluminium capping (colour dark grey RAL 7016)

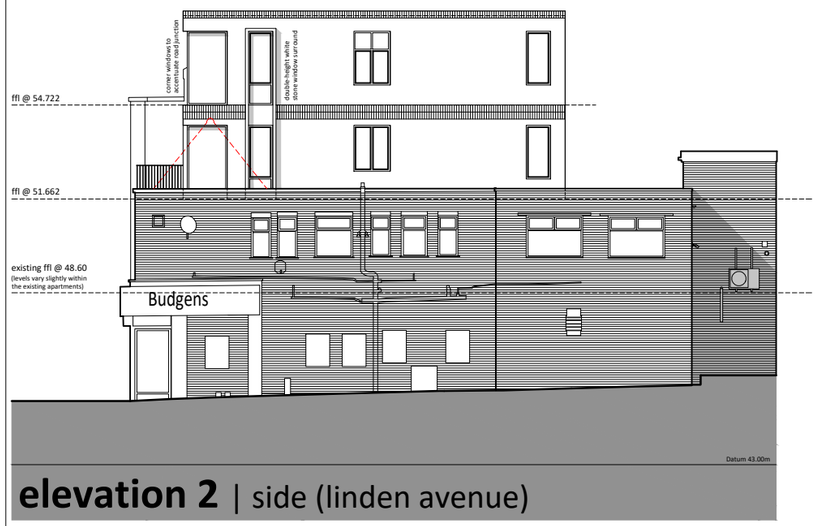
8 Existing render facade to be resurfaced and made good; new silicon through-colour render to be applied (colour: white)

Recessed square aluminium rainwater downpipes (colour dark grey) set within facade to create shadow gap; hidden rainwater gutters and hoppers to downpipes to be concealed within roof and wall profiles

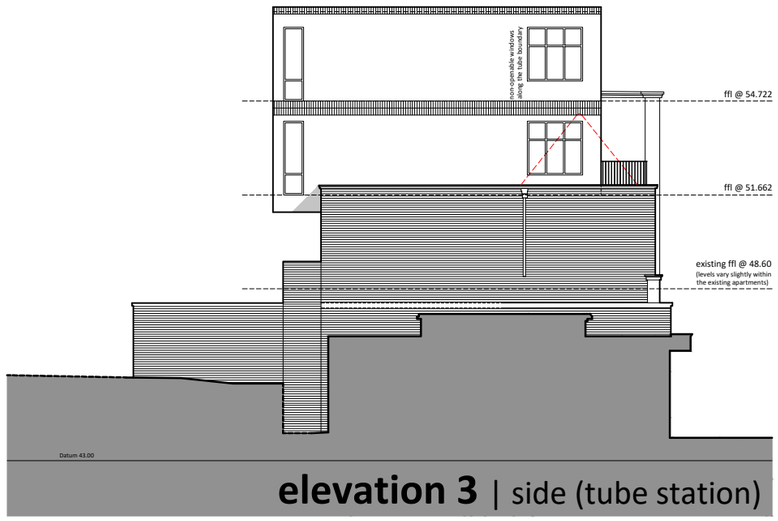
notes:

Drawing based on survey and lease info provided by others

elevation 1 | front (victoria road streetscene)



elevation 2 | side (linden avenue)



elevation 3 | side (tube station)

rev:	date:	comment(s):	name:	check:

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status: **PLANNING** 3

client: Urbanhold Ltd

job: 25-49 Victoria Road, Ruislip Manor

title: **elevations** | front (victoria rd) & sides

drawn: fF date: May 23

checked: fF scale @ a3: 1:200

job no: **C4163** drg no: **020**

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0 2 4 6 8 10 12

scale 1:200 metres

LEGEND | TBC

elevation 1

6 2-3mm thick corten steel cladding (naturally weathered, brushed and wiped clean); crystal clear one-part air cured coating for corten and bare carbon steel (Bromoco CT-7571-T Corten Sealer or similar approved) to be applied to all exposed panels to ensure colour/texture protection and maintenance free application

Fixing details to allow for either flat panels faced-fixed (external recesses) or recessed fixed panels folded top and bottom to complete a tray (dome head mill finish stainless steel fixings); external shadow gap joints to vary between 5-25mm to accentuate specific panels (of varying sizes), which are to be laid in random manner to ensure vibrancy

Some of the specified panels are patterned with small random circular incidental laser perforations (boundary fence along Victoria Road, which refers to the school

PENDING | TBC

7 Multi-textured facing brickwork (colour: multi-grey) laid in flemish bond with 1/2 and 3/4 bat junctions (unless stated otherwise) applied as the predominant elevational material to the mews development; parapet walls are achieved with soldier coursing (2no layers half-height bricks) and slim-profile aluminium capping (colour dark grey RAL 7016)

8 Existing render facade to be resurfaced and made good; new silicon through-colour render to be applied (colour: white)

Recessed square aluminium rainwater downpipes (colour dark grey) set within facade to create shadow gap; hidden rainwater gutters and hoppers to downpipes to be concealed within roof and wall profiles

elevation 4 | rear (service road - section through retail units)

notes:

Drawing based on survey and lease info provided by others

rev:	date:	comment(s):	name:	check:

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status: **PLANNING** 3

client: Urbanhold Ltd

job: 25-49 Victoria Road, Ruislip Manor

title: **elevations** | rear (service rd) & sections

drawn: fF date: May 23

checked: fF scale @ a3: 1:200

job no: **C4163** drg no: **021**

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Appendix: C – EA Flood map for Planning

TRANSPORT PLANNING ■ HIGHWAYS AND DRAINAGE ■ FLOOD RISK
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Flood map for planning

Your reference	Location (easting/northing)	Created
<Unspecified>	**510127/187177**	**22 May 2023 15:44**

Your selected location is in flood zone 1, an area with a low probability of flooding.

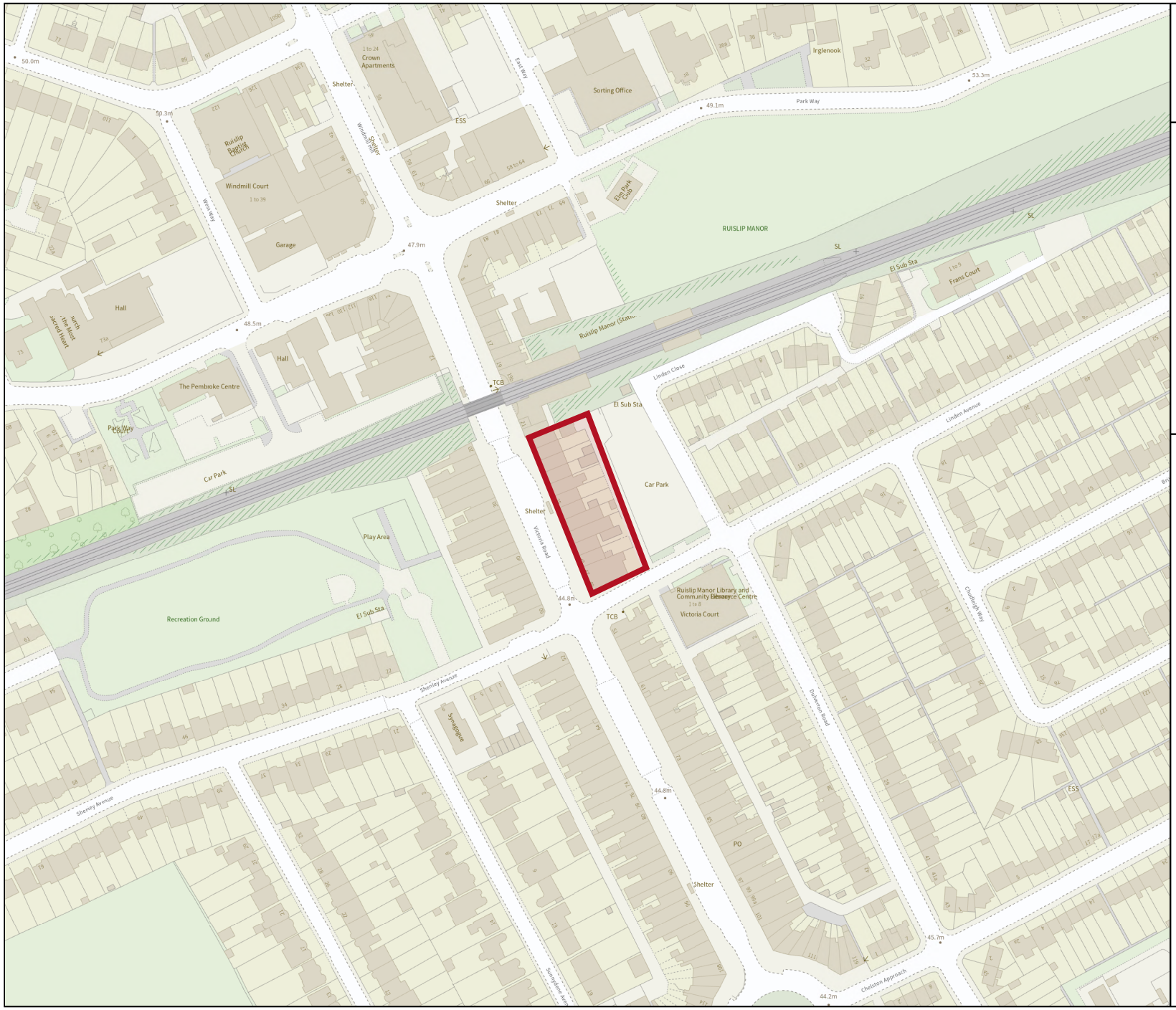
You will need to do a flood risk assessment if your site is **any of the following:**

- bigger that 1 hectare (ha)
- In an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.



Environment Agency

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
510127/187177

Scale
1:2500

Created
22 May 2023 15:44

- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60m

Appendix: D – Thames Water Asset Mapping

TRANSPORT PLANNING ■ HIGHWAYS AND DRAINAGE ■ FLOOD RISK
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Asset Location Search Sewer Map - ALS/ALS Standard/2023_4837222

The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 510112,187179

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 (2020) 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
0106	n/a	n/a
011I	n/a	n/a
1114	46.99	44.74
1102	47.09	44.5
011G	n/a	n/a
1103	47.4	44.66
0102	44.75	41.56
011H	n/a	n/a
111A	n/a	n/a
111O	n/a	n/a
0101	44.41	41.89
111J	n/a	n/a
021B	n/a	n/a
121A	n/a	n/a
1201	46.56	45.24
0212	43.63	42.96
0203	43.28	42.13
0206	43.21	41.99
0211	43.44	42.79
0205	43.28	42.15
0209	43.35	42.5
1204	46.49	45.53
0208	43.4	42.58
1203	47.28	45.26
021D	n/a	n/a
0207	44.37	43.74
1202	47.75	47
021C	n/a	n/a
021E	n/a	n/a
011K	n/a	n/a
011E	n/a	n/a
0202	44.3	42.63
021I	n/a	n/a
021A	n/a	n/a
0201	47.97	46.86
101J	n/a	n/a
101I	n/a	n/a
101H	n/a	n/a
101E	n/a	n/a
111B	n/a	n/a
111K	n/a	n/a
111N	n/a	n/a
111G	n/a	n/a
1107	44.76	41.13
1104	45.88	44.8
111L	n/a	n/a
1106	44.75	41.13
011D	n/a	n/a
111H	n/a	n/a
111E	n/a	n/a
1101	44.66	41.66
111I	n/a	n/a
011A	n/a	n/a
1111	44.97	43.58
1109	44.73	41.5
011B	n/a	n/a
111M	n/a	n/a
1105	44.62	43.36
1112	45.83	44.89
0104	n/a	n/a
011J	n/a	n/a
011C	n/a	n/a
0105	n/a	n/a
011F	n/a	n/a
1113	47.03	44.78
0001	44.46	42.12
0002	44.18	42.28
0103	44.56	43.14
011L	n/a	n/a

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.

Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

Foul Sewer: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water Sewer: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined Sewer: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

- Storm Sewer
- Sludge Sewer
- Foul Trunk Sewer
- Surface Trunk Sewer
- Combined Trunk Sewer
- Foul Rising Main
- Surface Water Rising Main
- Combined Rising Main
- Vacuum
- Thames Water Proposed
- Vent Pipe
- Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

- Sewer
- Culverted Watercourse
- Proposed
- Decommissioned Sewer
- Content of this drainage network is currently unknown
- Ownership of this drainage network is currently unknown

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

- Air Valve
- Meter
- Dam Chase
- Vent
- Fitting

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

- Ancillary
- Drop Pipe
- Control Valve
- Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

- Inlet
- Outfall
- Undefined End

Other Symbols

Symbols used on maps which do not fall under other general categories.

- Change of Characteristic Indicator
- Public / Private Pumping Station
- Invert Level
- Summit

Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Chamber
- Operational Site

Ducts or Crossings

- Casement

Ducts may contain high voltage cables. Please check with Thames Water.

- Conduit Bridge
- Subway
- Tunnel

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plan are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
5) 'na' or '0' on a manhole indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement.

If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

Appendix: E – Surface Water Flood Risk Mapping

TRANSPORT PLANNING ■ HIGHWAYS AND DRAINAGE ■ FLOOD RISK
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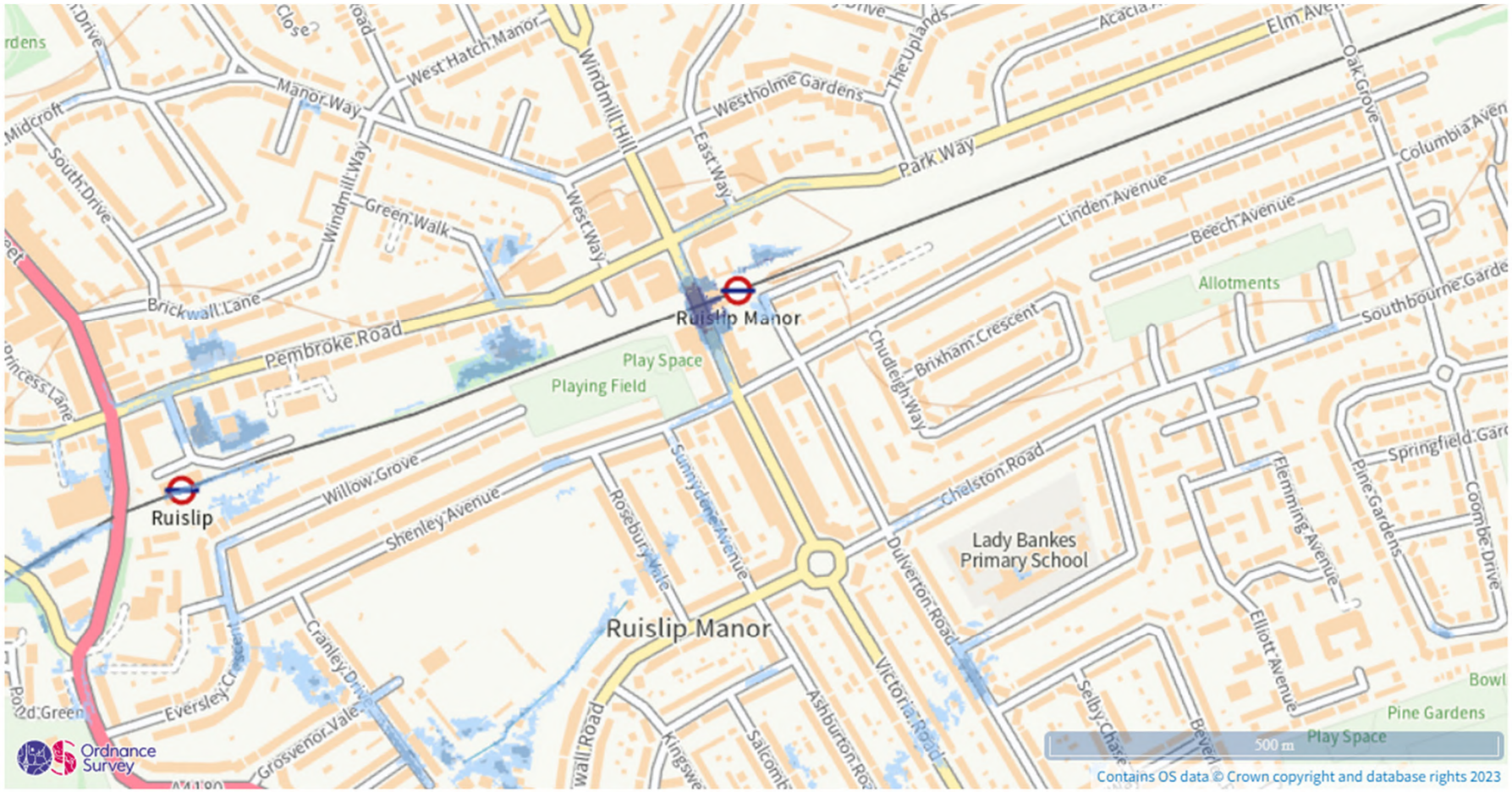
Extent of flooding from surface water

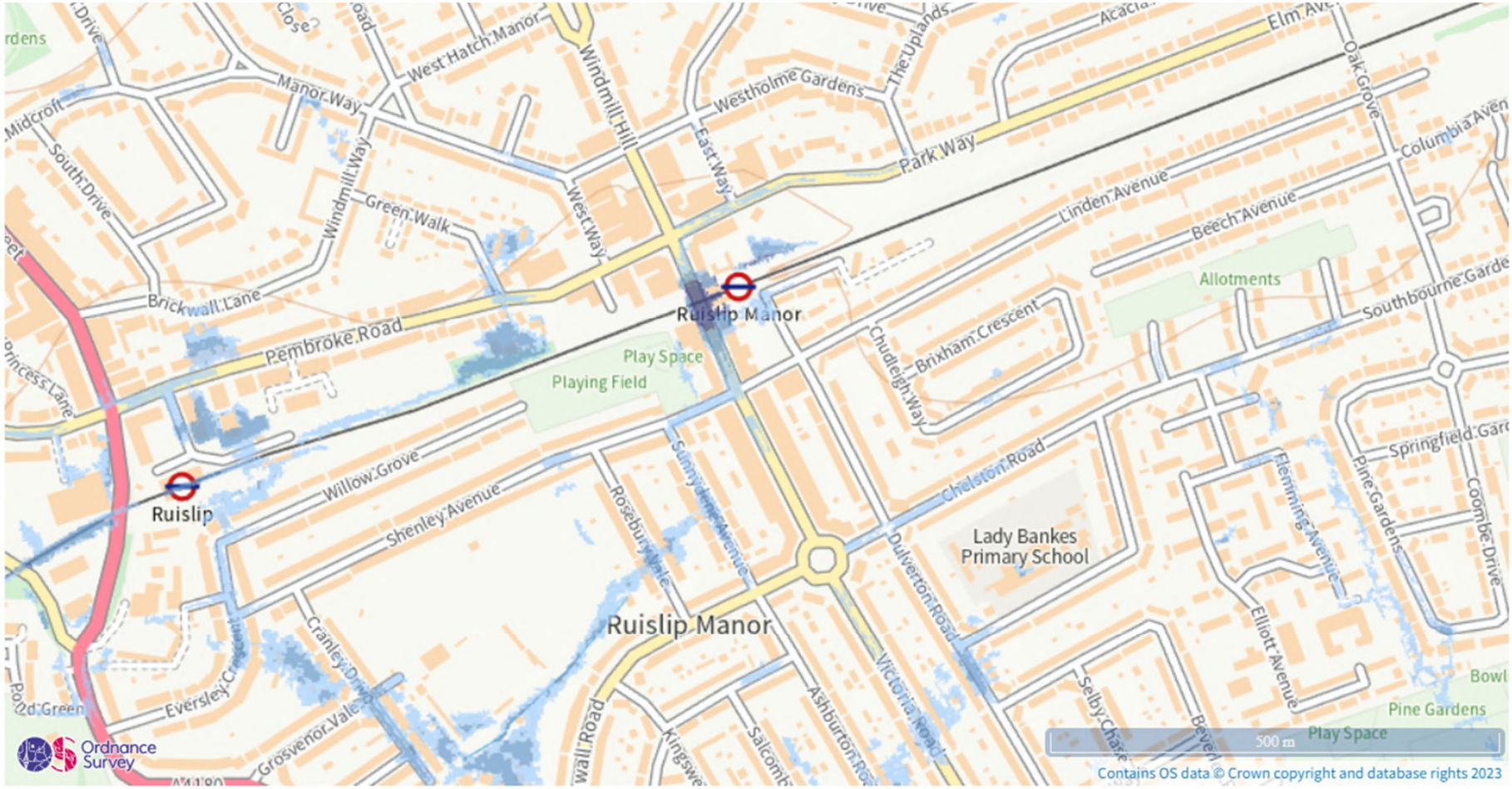
High Medium Low Very low Location you selected



Surface water flood risk: water depth in a high risk scenario

Flood depth (millimetres)

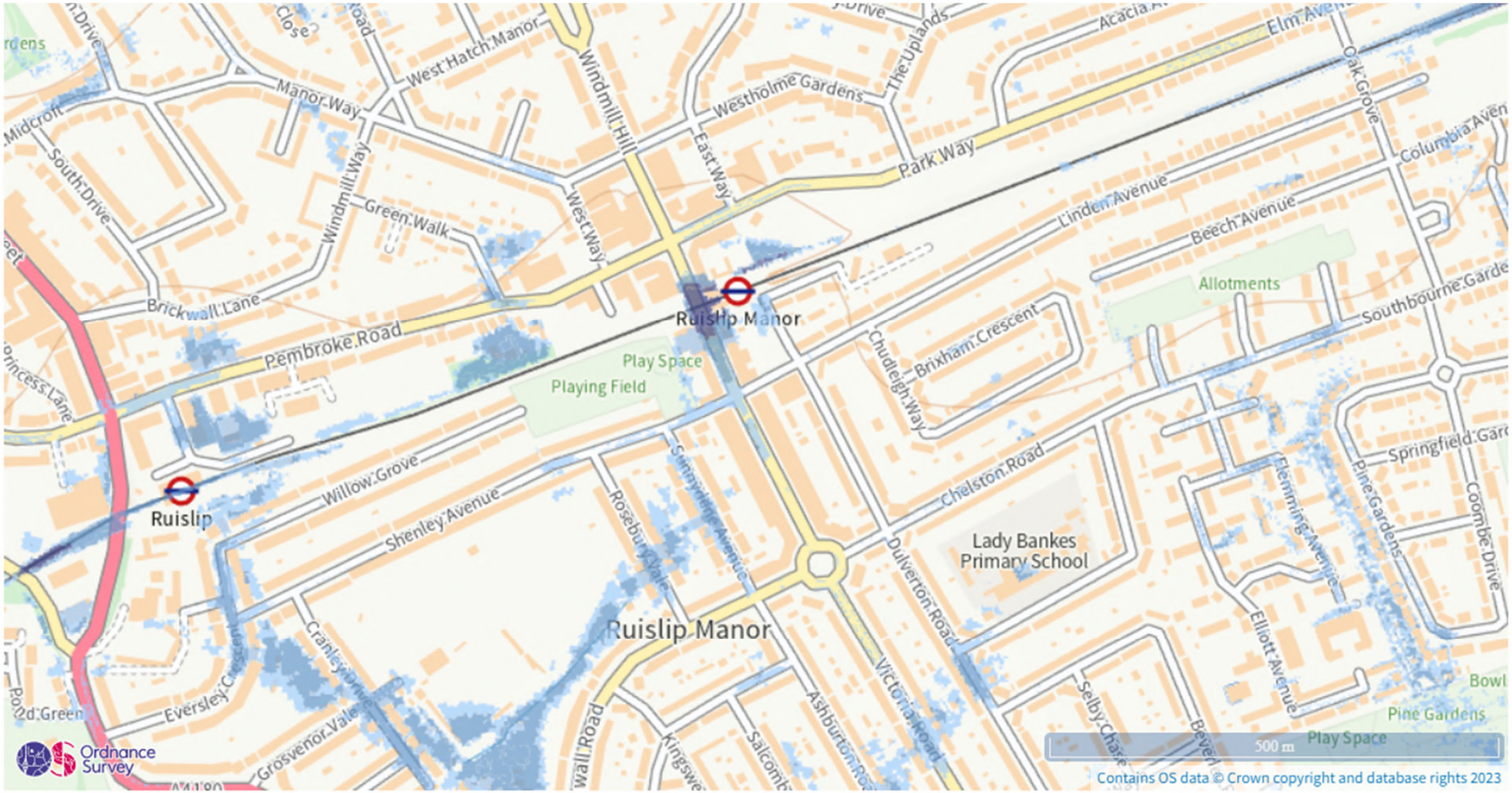
Over 900mm | 300 to 900mm | Below 300mm | Location you selected



Surface water flood risk: water depth in a medium risk scenario

Flood depth (millimetres)

Over 900mm | 300 to 900mm | Below 300mm | Location you selected



Surface water flood risk: water depth in a low risk scenario

Flood depth (millimetres)

Over 900mm | 300 to 900mm | Below 300mm | Location you selected

Appendix: F – Surface Water Flood Risk Overlain onto Proposed Devlopment

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KEY:

- 0–300mm FLOOD DEPTH EXTENT DURING LOW RISK SURFACE WATER FLOOD EVENT
- 300–600mm FLOOD DEPTH EXTENT DURING LOW RISK SURFACE WATER FLOOD EVENT
- 600–900mm FLOOD DEPTH EXTENT DURING LOW RISK SURFACE WATER FLOOD EVENT
- 900–1200mm FLOOD DEPTH EXTENT DURING LOW RISK SURFACE WATER FLOOD EVENT
- GREATER THAN 1200mm FLOOD DEPTH EXTENT DURING LOW RISK SURFACE WATER FLOOD EVENT

REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS:

EAS

1st Floor Millers House, Roydon Road,
Stanstead Abbotts, Hertfordshire, SG12 8HN
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CLIENT:

SAVILLS

ARCHITECT:

PROJECT:

25 – 49 VICTORIA ROAD, RUISLIP MANOR
HILLINGDON

TITLE:

LOW RISK SURFACE WATER FLOOD EXTENT & DEPTH

SCALE @ A2:	DESIGN–DRAWN:	DATE:
1:250	MC	14/06/2023

PROJECT No:	DRAWING No:
4388	SK01