

Flood Risk Assessment

Risk: Very Low to High

The Site is mapped within the EA's fluvial Flood Zones 1 and 2 (Low to Medium probability), with the flood risk originating from historical flooding associated with the River Pinn. Detailed flood model data obtained from the EA confirms the Site is likely to remain flood free during all modelled flooding scenarios. On this basis, the risk of flooding from rivers and sea is Very Low.

Following analysis of the baseline data the Site is considered to be at a Very Low to High risk of surface water flooding, a Negligible risk of groundwater flooding and a Very Low risk of flooding from artificial sources (reservoirs, canals and sewers).

Mitigation measures are recommended in this report to reduce the risks to an acceptable level over the lifetime of the development.



Report prepared for

Lee Helliar

Site Address

25 Kings College Road
Ruislip
HA4 7JY

Date

03/07/2026

Site Area

600 m²

Grid Reference

509677, 188026

Report Status

FINAL

Report Reference

91989R1



Version Control

Report Version	Date	Report Author	Report Checker and reviewer
91989R1	03/07/2026	James Robinson Senior Consultant	Toby Kay Project Consultant

1.Executive summary

A review has been undertaken of national environmental data sets to assess the flood risk to the Site from all sources of flooding in accordance with the National Planning Policy Framework (NPPF) (2024) and National Planning Practice Guidance (NPPG) (published in 2014 and updated in September 2025). A site-specific flood risk assessment, to assess the flood risk to and from the development Site, is provided within this concise interpretative report written by an experienced GeoSmart consultant. Baseline flood risk and residual risks that remain after the flood risk management and mitigation measures are implemented are summarised in the table below.

Site analysis

Source of Flood Risk	Baseline ¹	After analysis ²	After Mitigation ³
River (fluvial) flooding	Very Low		N/A
Sea (coastal/tidal) flooding	Very Low		N/A
Surface water (pluvial) flooding	Very Low to High		Very Low
Groundwater flooding	Negligible		N/A
Other flood risk factors present	No		N/A
Is any other further work recommended?	Yes (see below)		

1 BASELINE risks assigned for the whole Site, using national risk maps, including the benefit of EA flood defences and the impacts of climate change.

2 AFTER ANALYSIS modification of risk assessment based on detailed site specific analysis including some or all of the following: flood model data, high resolution mapping, building location, access routes, topographic and CCTV surveys. Reasons for the change in classification are provided in the text.

3 AFTER MITIGATION risks include risks to proposed development / asset and occupants if mitigation measures recommended in this report are implemented, including the impacts of climate change.

*N/A indicates where mitigation is not required.

Summary of existing and proposed development

The Site is currently used within a residential capacity comprising of a detached two-storey dwelling, detached garage, driveway and rear garden. Development proposals comprise demolition of the existing garage and construction of a replacement garage with a second-storey art room above. The proposals would result in a slightly larger overall built footprint. Site plans are included within Appendix A.

Summary of flood risks

The flood risks from all sources have been assessed as part of this report and are as follows:

River (fluvial) and Sea (Estuarine/Coastal) flooding

According to the Environment Agency's (EA) Flood Map for Planning Purposes, the Site is located within fluvial Flood Zones 1 (Low Probability) and 2 (Medium Probability), with the flood risk originating from the River Pinn.

- Historical flooding is understood to have previously occurred at the Site in the summer of 1977 which is the source of the Flood Zones in this area.

According to the EA's Risk of Flooding from Rivers and Sea (RoFRS) map, which considers the type, condition and crest height of flood defences, the Site has a Very Low risk of flooding in both the present day and climate change (2036 to 2069) scenarios.

Modelled flood data obtained from the EA has been analysed in line with the most up to date guidance on climate change (EA, 2022), to confirm a maximum "design" flood level at the Site.

- The Site is modelled to remain flood free in all potential flooding scenarios, up to and including the 1% AEP plus 25% allowance for climate change event.

Surface water (pluvial) flooding

According to the EA's Surface Water Spatial Planning dataset, the Site has a risk of pluvial flooding ranging from Very Low to High in both the present-day and climate change (2061-2125) modelling.

- During all modelled pluvial events (>3.3% – 0.1% AEP), flooding of up to 0.30 m is modelled to impact an area at the west of the Site, associated with a topographic compared the surrounding ground levels. This equates to an approximate flood level of 42.30 mAOD.

Groundwater flooding

Groundwater Flood Risk screening data indicates there is a Negligible potential risk of groundwater flooding at the surface in the vicinity of the Site during a 1 in 100 year event.

Artificial sources of flooding

The risk of flooding from artificial (man-made) sources such as reservoirs, sewers and canals has been assessed:

- The EA's Risk of Flooding from Reservoir map confirms the Site is at risk of reservoir flooding during a "wet day" scenario only. The potential for a breach of a reservoir to occur and flooding affecting the Site is very low.
- Ordnance Survey (OS) data confirms there are no canals near to the Site.

- Interactive mapping produced to support the West London SFRA (Metis Consultants, 2018) identifies no incidences of flooding as a result of surcharging sewers within the HA4 7 postcode.

The risk of flooding from artificial sources is considered to be Very Low.

The risk to the development has been assessed over its expected 100 year lifetime, including appropriate allowances for the impacts of climate change which could increase the flood risk to the Site. Risks identified include increased potential for surface water flooding, and appropriate mitigation measures are proposed.

Recommendations

Recommendations for flood mitigation are provided below, based upon the proposed development and the flood risk identified at the Site.

- Typically, in accordance with the EA's Flood Risk Standing Advice, finished floor levels (FFLs) should be set 0.30 m above the surrounding external ground levels to reduce the residual risk of flooding. However, given that the ground floor element of the proposed building comprises a garage, significant raising of the finished floor level is not considered necessary or proportionate to the identified level of flood risk.
- Due to the risk from surface water flooding, Finished Floor Levels of the proposed development should be set at least 0.15 m above the maximum 1 in 100 year event flood level to 42.45 mAOD, where practicable. Where FFLs cannot be raised to the required height, this is considered acceptable on the basis that the ground floor use is for a garage.
- Formal flood resistance measures are not considered necessary for the ground floor garage however any electrical equipment, services or valuable items should be raised above the flood level to reduce damage and aid recovery should internal flooding of the garage occur.
- Occupants of the Site should also be signed up to receive EA Flood Alerts and Flood Warnings.
- The ongoing management and maintenance of existing and any proposed drainage networks, under the riparian ownership of the developer, should be undertaken in perpetuity with the development.

GeoSmart recommend the mitigation measures discussed within this report are considered as part of the proposed development where possible and evidence of this is provided to the Local Planning Authority as part of the planning application.

2. Introduction

Background and purpose

A site-specific flood risk assessment has been undertaken, to assess the flood risk to and from the development Site. This assessment has been undertaken by firstly compiling information concerning the Site and the surrounding area. The information gathered was then used to construct a 'conceptual site model', including an understanding of the appropriateness of the development as defined in the NPPF (2024) and the source(s) of any flood risk present, guided by the NPPG (Published in 2014 and updated in September 2025). Finally, a preliminary assessment of the steps that can be taken to manage flood risk to the development was undertaken.

This report has been prepared with reference to the NPPF (2024) and NPPG (2025).

"The National Planning Policy Framework set out the Government's planning policies for England and how these are expected to be applied" (NPPF, 2024).

The NPPF (2024) and NPPG (2025) promote a sequential, risk based approach to the location of development. This also applies to locating a development within a Site which has a variable risk of flooding.

"The approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding" (Paragraph: 023. NPPG, 2025).

The purpose of this report is to provide clear and pragmatic advice regarding the nature and potential significance of flood hazards which may be present at the Site.

Report scope

In accordance with the requirements set out within NPPG 2025 (Paragraph: 021 Reference ID: 7-021-20220825), a thorough review of publicly and commercially available flood risk data and EA supplied data indicating potential sources of flood risk to the Site from rivers and coastal sources, surface run-off (pluvial), groundwater and reservoirs, including historical flood information and modelled flood extent. Appropriate measures are recommended to manage and mitigate the flood risk to the property.

Information obtained from the EA and a review of the West London Strategic Flood Risk Assessment (SFRA) (Metis Consultants, 2018) has been used to ascertain local flooding issues and, where appropriate, identify information to support a Sequential and/or Exception test required as part of the NPPF (2024).

The existing and future flood risk to and from the Site from all flood sources is assessed in line with current best practice using the best available data. The risk to the development has been assessed over its expected lifetime, including appropriate allowances for the impacts of climate change. Residual risks that remain after the flood risk management and mitigation measures are implemented are considered with an explanation of how these risks can be managed to keep the users of the development safe over its lifetime.

An indication of whether the Site will potentially increase flood risk elsewhere is provided, including where the proposed development increases the building footprint at the Site. A drainage strategy to control runoff can be commissioned separately if identified as a requirement within this report.

Report limitations

It is noted that the findings presented in this report are based on a desk study of information supplied by third parties. Whilst we assume that all information is representative of past and present conditions, we can offer no guarantee as to its validity and a proportionate programme of site investigations would be required to fully verify these findings.

The basemap used is the OS Street View 1:10,000 scale; however, the Site boundary has been drawn using BlueSky aerial imagery to ensure the correct extent and proportion of the Site is analysed.

This report excludes the consideration of potential hazards arising from any activities at the Site other than normal use and occupancy for the intended land uses. Hazards associated with any other activities have not been assessed and must be subject to a specific risk assessment by the parties responsible for those activities.

Datasets

The following table shows the sources of information that have been consulted as part of this report:

Table 1. Datasets consulted to obtain confirmation of sources of flooding and risk

Source of flooding	Datasets consulted				
	Commercial Flood Maps	Local Policy & Guidance Documents*	Environment Agency (Appendix B)	Utility provider	OS Data
Historical	X	X	X		
River (fluvial) / Sea (tidal/coastal)	X	X	X		
Surface water (pluvial)	X	X	X		
Groundwater	X	X			
Sewer		X		X	
Culvert/bridges		X			X

Source of flooding	Datasets consulted				
	Commercial Flood Maps	Local Policy & Guidance Documents*	Environment Agency (Appendix B)	Utility provider	OS Data
Reservoir		X	X		

*Local guidance and policy, referenced below, has been consulted to determine local flood conditions and requirements for flood mitigation measures.

Local policy and guidance

For this report, several documents have been consulted for local policy and guidance and relevant information is outlined below:

Hillingdon Local Plan: Part 1 Strategic Policies (Adopted November 2012):

Policy EM6: Flood Risk Management

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. Site analysis

Site information

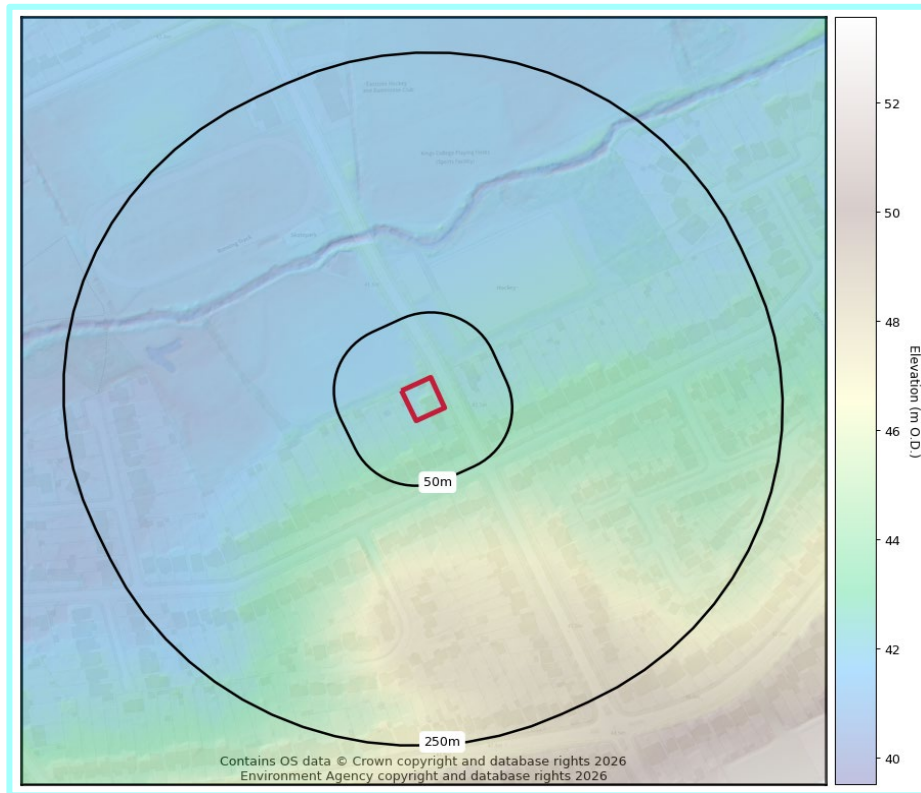
The Site is located in Ruislip in the London Borough of Hillingdon in a setting of residential and recreational land use at National Grid Reference TQ 09677 88026.

Figure 1. Aerial imagery of the Site (Bluesky, 2026)



Figure 2 indicates ground levels within 500 m of the Site fall in a northerly direction, towards the River Pinn.

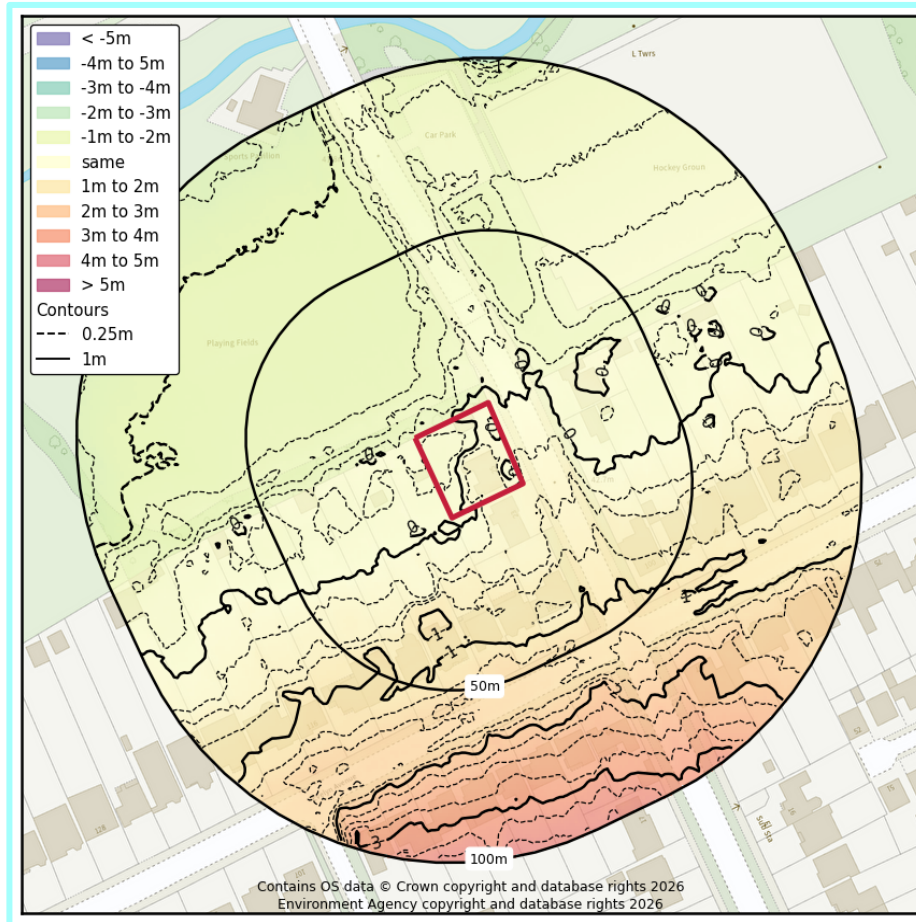
Figure 2. Site location and LiDAR ground elevations (GeoSmart, 2026)



A site-specific topographic survey was undertaken for the Site by Total Geomatics in October 2021 confirming ground levels on-Site range between 41.94 m and 42.80 m. It is understood that the survey was undertaken using a local datum of 40.00 m, and therefore use of this data is not considered appropriate to ascertain likely depths of flooding using the EA's data.

As such, the EA's LiDAR DTM elevation data has also been included (Figure 3). This indicates that general ground levels across the Site are between approximately 42.06 mAOD and 42.96 mAOD, with levels falling gradually in a north-westerly direction. This is based on elevation data obtained for the Site to a 1 m resolution with a vertical accuracy of ± 0.15 m.

Figure 3. Relative topography in the area surrounding the Site (GeoSmart, 2026)



Development

The Site is currently used within a residential capacity comprising of a detached two-storey dwelling, detached garage, driveway and rear garden. Development proposals comprise demolition of the existing garage and construction of a replacement garage with a second-storey art room above. The proposals would result in a slightly larger overall built footprint. Site plans are included within Appendix A.

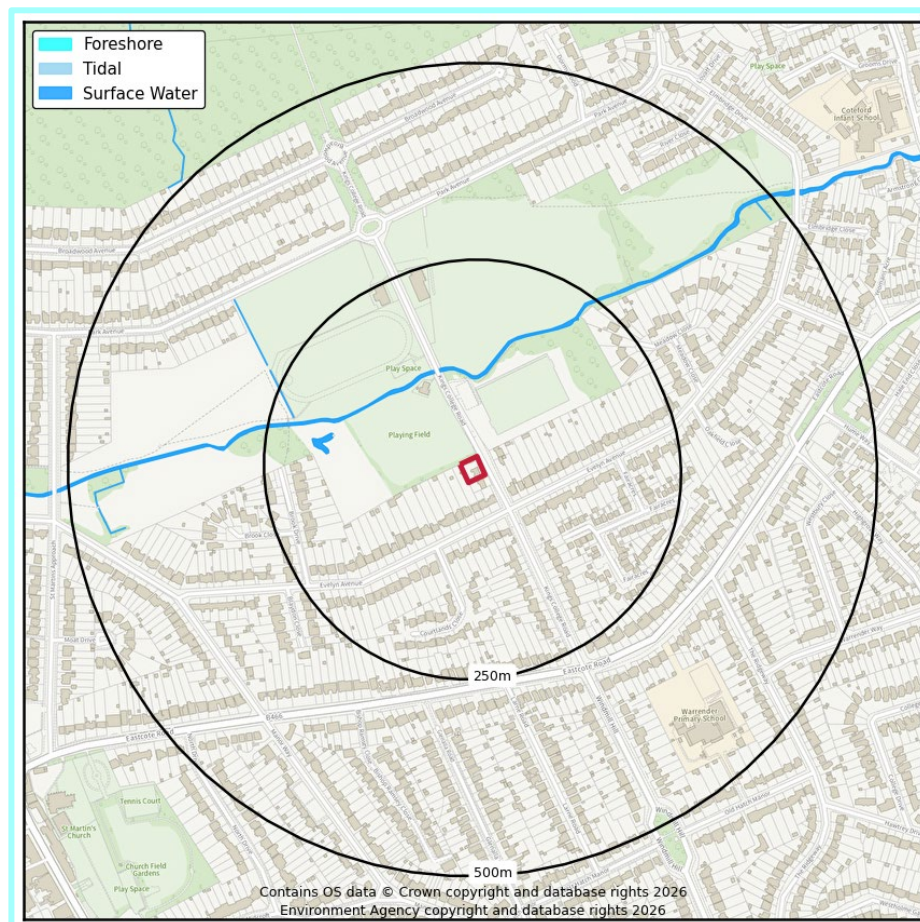
The effect of the overall development will not result in an increase in number of occupants and/or users of the Site and will not result in the change of use, nature or times of occupation. According to Annex 3 of the NPPF (2024), the vulnerability classification of the existing development is More Vulnerable and proposed development is More Vulnerable. The estimated lifespan of the development is 100 years.

Hydrological features

According to Ordnance Survey (OS) mapping included in Figure 4, there are numerous surface water features within 500 m of the Site.

- The River Pinn is located approximately 100 m north of the Site, flowing in a westerly direction. The Kings College Road crosses the River Pinn 120 m north of the Site.
- A small, unnamed pond is located approximately 170 m to the northwest of the Site.
- The Park Wood Ditch is located approximately 220 m northwest of the Site, flowing into the River Pinn.
- From the Total Geomatics topographic (2021) two small pond features are located in the rear of the property.

Figure 4. Surface water features (EA, 2026)



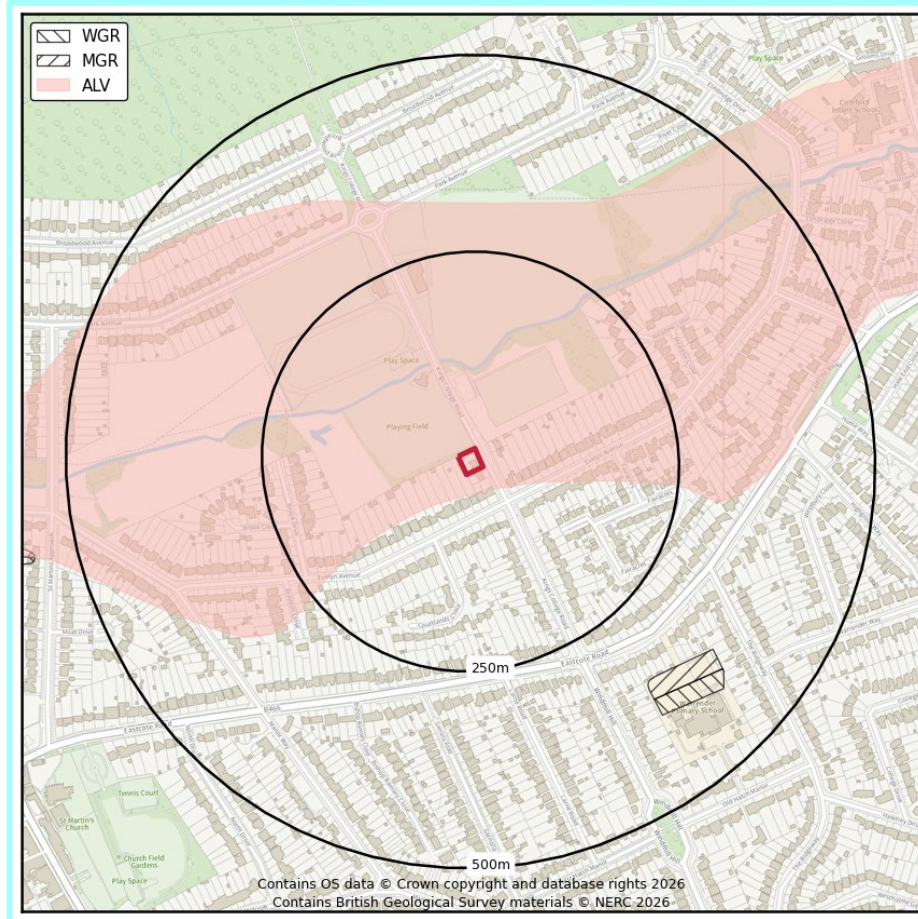
Proximity to relevant infrastructure

No infrastructure has been identified within proximity of the Site which could influence the risks of flooding to existing or future occupants.

Hydrogeological features

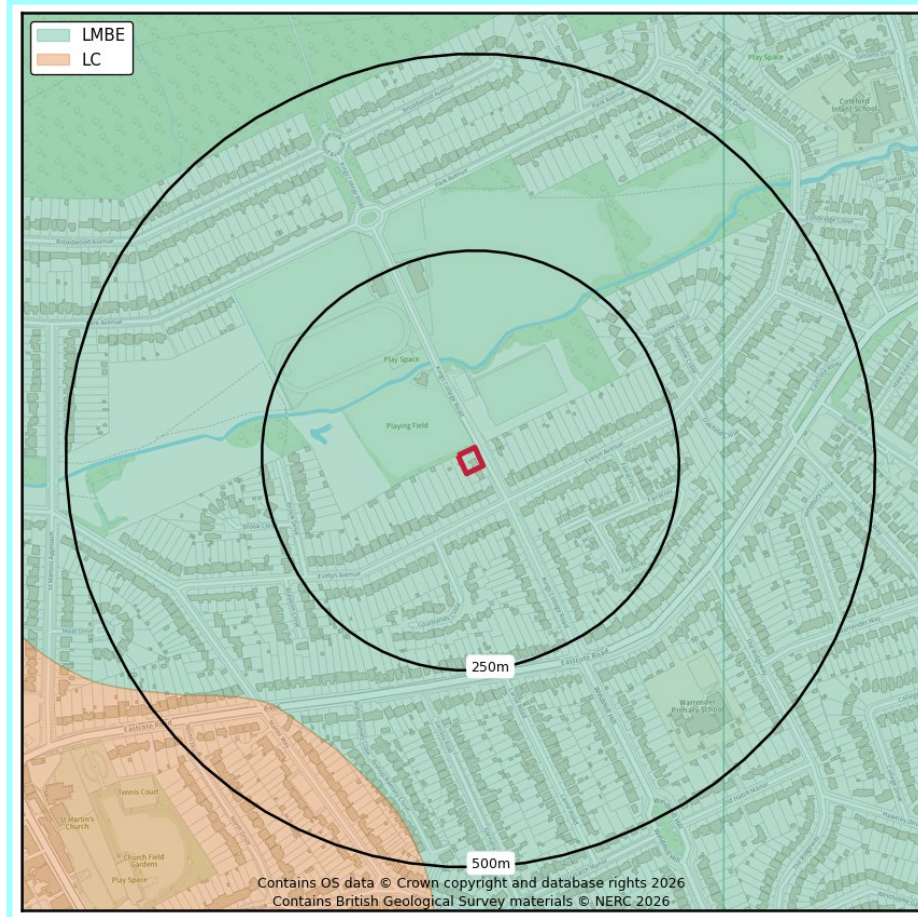
British Geological Survey (BGS) mapping indicates the underlying superficial geology (Figure 5) consists of Alluvium (ALV), which comprises silt and clay (BGS, 2026). These deposits are classified by the EA as a Secondary (A) Aquifer, which indicates it is likely to comprise permeable layers capable of supporting water supply at a local rather than strategic scale.

Figure 5. Superficial Geology (BGS, 2026)



BGS mapping indicates the underlying bedrock geology (Figure 6) consists of the Lambeth Group (LMBE), which comprises clay, silt and sand (BGS, 2026). This bedrock geology is classified by the EA as a Secondary (A) Aquifer, which indicates it is likely to comprise permeable layers capable of supporting water supply at a local rather than strategic scale.

Figure 6. Bedrock Geology (BGS, 2026)



Geological conditions

A review of the BGS borehole database (BGS, 2026) indicates the nearest and most relevant boreholes to the Site (ref: TQ08NE162 and TQ08NE163) are located 520 m to the north west of the Site boundary at an elevation of 42.40 mAOD (estimated using LiDAR). A summary of the geological strata encountered by the boreholes is provided within the table overleaf.

It should be noted that the boreholes were drilled a significant distance (>500 m) from the Site and therefore are unlikely to be fully representative of the underlying Site conditions; however, have been included for completion in the absence of more relevant data.

Table 2. Summary of BGS borehole information

Strata encountered	BGS borehole TQ08NE162		BGS borehole TQ08NE163	
	Depth to base of stratum (m bgl)	Strata composition	Depth to base of stratum (m bgl)	Strata composition
Made Ground	0.60	Topsoil clayey sand with bricks and gravel	0.65	Brown clayey sand with gravel
Alluvium (assumed)	1.25	Stiff brown silty clay	1.40	Firm brown and grey mottled silty clay
	1.80	Stiff brown and grey mottled silty clay	1.65	Firm brown sandy clay
	2.00	Firm brown and grey sandy clay	2.15	Medium dense brown sand with occasional gravel
Lambeth Group (assumed)	3.30	Medium dense light greyish brown silty fine sand	5.80	Stiff brown and grey mottled silty clay
	>6.00 (base of borehole)	Stiff brown and grey mottled slightly silty clay with fine silty sand	>6.00 (base of borehole)	Stiff grey silty sandy clay with gravel

Groundwater

Whilst borehole TQ08NE163 only recorded slight seepage at a depth of 2.0 m bgl with no recorded significant strike; borehole TQ08NE162 recorded a groundwater level of 3.0 m bgl in June 1990. This should be caveated that the boreholes are located at a significant distance and are unlikely to reflect the groundwater conditions beneath the Site.

4. Flood risk to the development

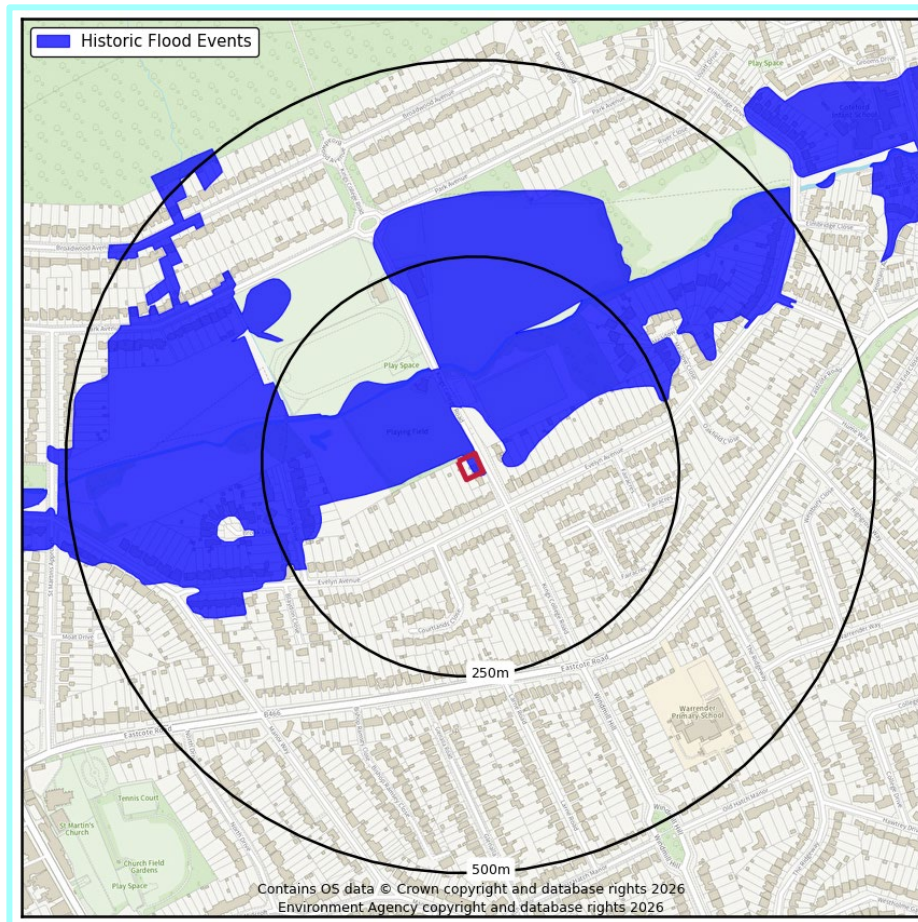
Historical flood events

According to the EA's Historical Flood Map (Figure 7) and the interactive mapping tool provided as part of the West London SFRA (Metis Consultants, 2018), a flood event has historically affected the Site.

- The Site was impacted by fluvial flooding in the summer of 1977 as a result of the capacity of the channel being exceeded in the absence of raised flood defences.

The purpose of historical flood data is to provide information on where and why flooding may have occurred in the past. The absence of any recorded events does not mean flooding has never occurred on-Site or that flooding will never occur at the Site.

Figure 7. EA Historic Flood Map (EA, 2026)



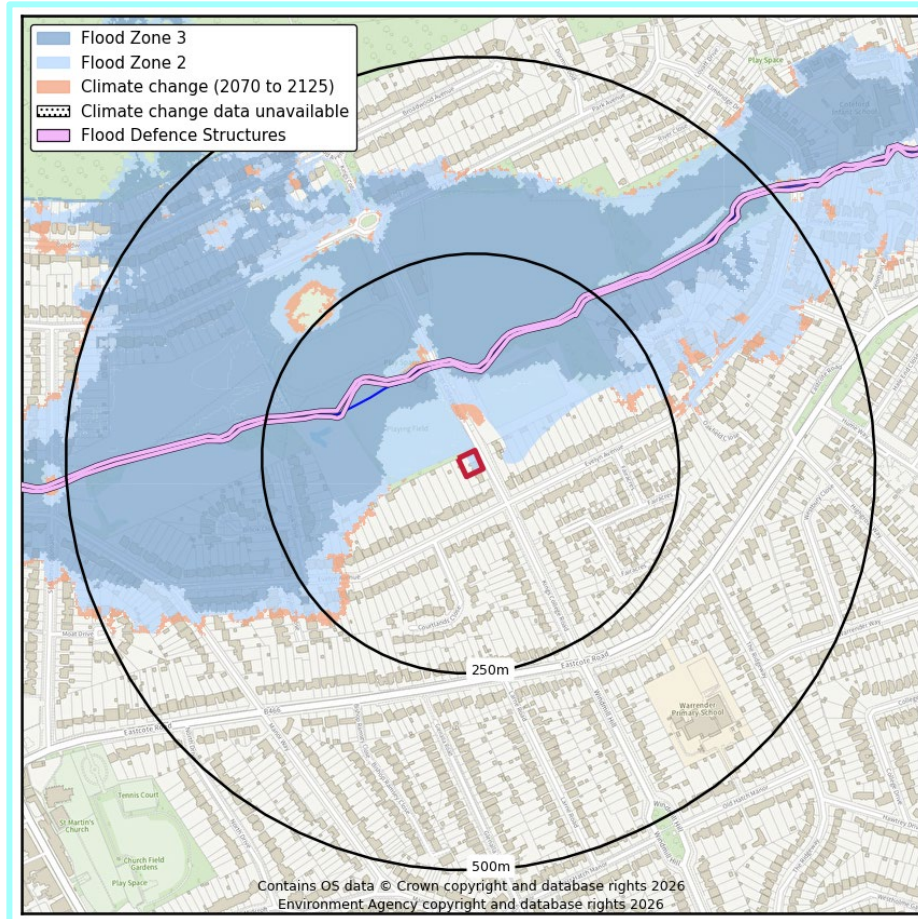
Rivers (fluvial) / Sea (coastal) / Estuarine (tidal) flooding

The predominant risk at the Site is from flooding from rivers, termed as fluvial flooding. The Site is located in an inland location and the risk of flooding from coastal and tidal processes are therefore considered to be Very Low.

River (fluvial) flooding occurs during times of heavy rainfall or snow melt when watercourses' capacity can be exceeded, over topping the banks and flood defences.

According to the EA's Flood Map for Planning Purposes (Figure 8), the Site includes areas located within fluvial Flood Zones 1 and 2 and is therefore classified as having Low to Medium probability of fluvial flooding from the River Pinn. Approximately 50% of the Site, located along the north-western and western Site boundary, is located within Flood Zone 2. The remainder of the Site (approximately 50% of the Site area), is located within Flood Zone 1.

Figure 8. EA Flood Map for Planning Purposes (EA, 2026)



Guidance

As defined in the NPPF (2024):

Flood Zone 2

Ignoring the presence of any defences, land located in a Flood Zone 2 is considered to have a Medium probability of flooding, with between a 1 in 100 and 1 in 1000 annual probability of fluvial flooding or between a 1 in 200 and 1 in 1000 annual probability of coastal flooding in any one year.

Development of “Water-Compatible”, “Essential Infrastructure”, “Less Vulnerable” and “More Vulnerable” land uses are suitable for this zone with “Highly Vulnerable” land uses requiring an Exception Test to be passed prior to development taking place.

Flood Zone 1

Ignoring the presence of any defences, land located in a Flood Zone 1 is considered to have a Low probability of flooding, with less than a 1 in 1000 annual probability of fluvial or coastal flooding in any one year.

Development of all uses of land is appropriate in this zone (see glossary for terminology).

Flood defences

Guidance

Sites that are located close to flood defences are likely to be zones where rapid inundation will occur in the event of the flood defences being overtopped or breached. A Site located close to flood defences (within 250 m) may require a more detailed FRA subject to local topography.

Existing flood defences

The EA’s Asset Information Management Systems (AIMS) dataset (2026) identifies the following assets within the vicinity of the Site:

- An area of natural high ground (asset ID: 153564 and 82646) forms the left bank of the River Pinn. The crest height and condition of these defences was not included within the dataset at the time of writing. Based on the available information it can be considered that the Site does not benefit from formal flood defences, with the only protection afforded to the Site through the capacity of the watercourse.

Future flood defences

It is understood that an ongoing natural flood management scheme is located to the north of the Site, associated with Park Wood and Pinn Meadows. The scheme aims to slow the rate at which runoff enters the River Pinn, with initial proposals understood to include:

- The re-naturalisation of Elma’s Ditch and storage areas for flood water away from the surrounding properties.
- Construction of three water storage basins.
- Daylighting of the Elma’s Ditch culvert.

Given that the Ruislip – Park Wood and Pinn Meadows FAS Modelling Study (Jacobs, 2021) was developed to provide a tool to assess alleviation options it is assumed that the risk

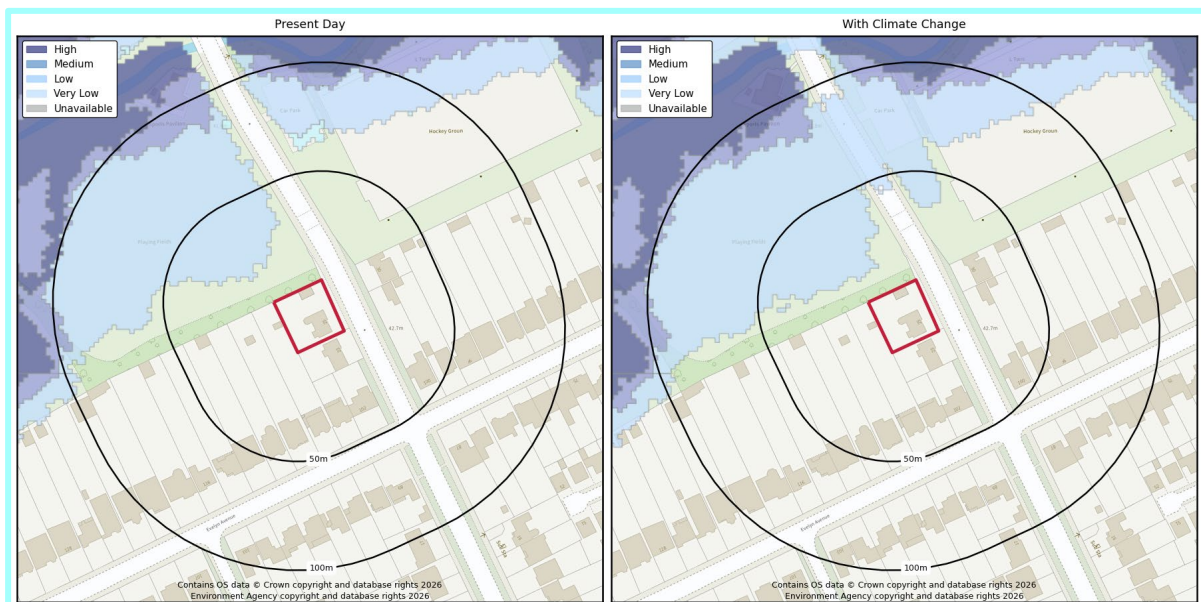
presented by the is likely to be sufficiently representative of the future fluvial flood risk at the Site.

Flood risk including the benefit of defences

The type and condition of existing flood defences influence the ‘actual’ risk of fluvial flooding to the Site, albeit the long-term residual risk of flooding (ignoring the defences) should be considered when proposing new development.

According to the EA’s Risk of Flooding from Rivers and Sea (RoFRS) map (Figure 9), which considers the type, condition and crest height of flood defences, the Site has a Very Low risk of flooding from the River Pinn in both the present-day and climate change (2036 to 2069) modelling.

Figure 9. Risk of Flooding from Rivers and Sea map present day and future (2036 to 2069) (EA, 2026)



Model data

As the Site is located within the EA’s fluvial floodplain, modelled flood elevation data was obtained from the EA and has been used to assess flood risk and to provide recommendations for mitigation for the proposed development.

Defended modelled data from the Ruislip - Park Wood and Pinn Meadows FAS Modelling study (Jacobs, 2021) has been extracted from the 2D floodplain data provided at the Site¹. The data is provided in the table overleaf and is included within Appendix B.

¹ The accuracy of the modelled flood levels is not known. These are dependent on the accuracy of input datasets such as LiDAR data, used to model the impacts of flooding within the 2D domain. Confirmation of the accuracy of the modelled flood data can be obtained separately from the Environment Agency.

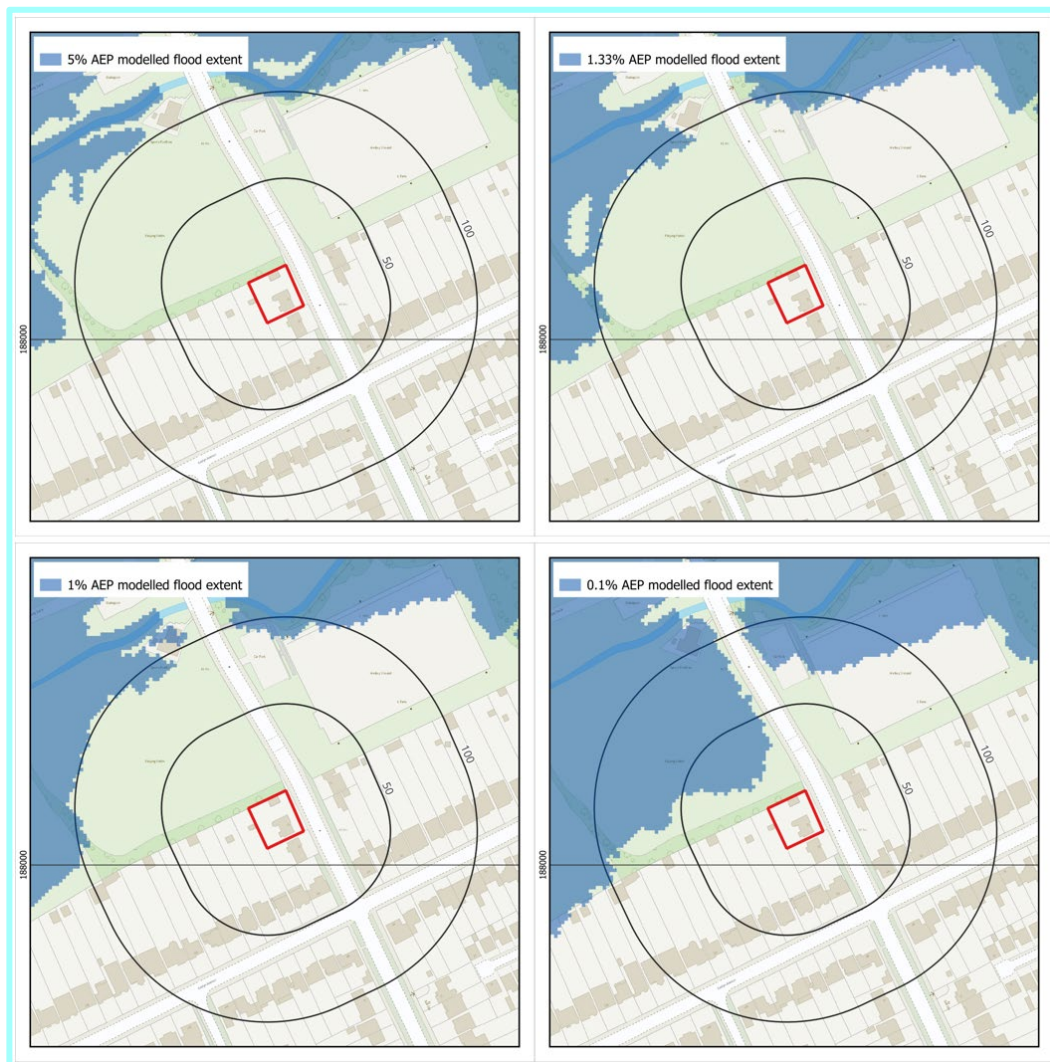
Table 3. Defended EA present day modelled flood data

Flood data	Flooding scenario			
	1 in 20 year	1 in 75 year	1 in 100 year	1 in 1000 year
Flood level (mAOD)	41.09	41.20	41.21	41.63
Flood depths (m)*	No flooding anticipated			

*Compared to ground levels at the Site between 42.06 and 42.96 mAOD.

The following figure confirms the flood extent associated with overtopping of the flood defences in the present day flooding scenarios.

Figure 10. Defended Modelled present day flooding scenarios (Jacobs, 2021)



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Ruislip - Park Wood and Pinn Meadows FAS Modelling study, Jacobs, 2021

Climate change factors

The EA's *Flood risk assessments: climate change allowances* guidance (published 19 February 2016 and updated May, 2022) has been used to inform a suitable increase in peak river flows for the proposed development. The updated guidance confirms 'More Vulnerable' developments are required to undertake a Basic assessment approach.

As the Site is located within the Colne Management Catchment, and the proposed development is classed as More Vulnerable, where the proposed lifespan is approximately 100 years, the Central (21%) allowance has been used to determine a suitable climate change factor to apply to river data.

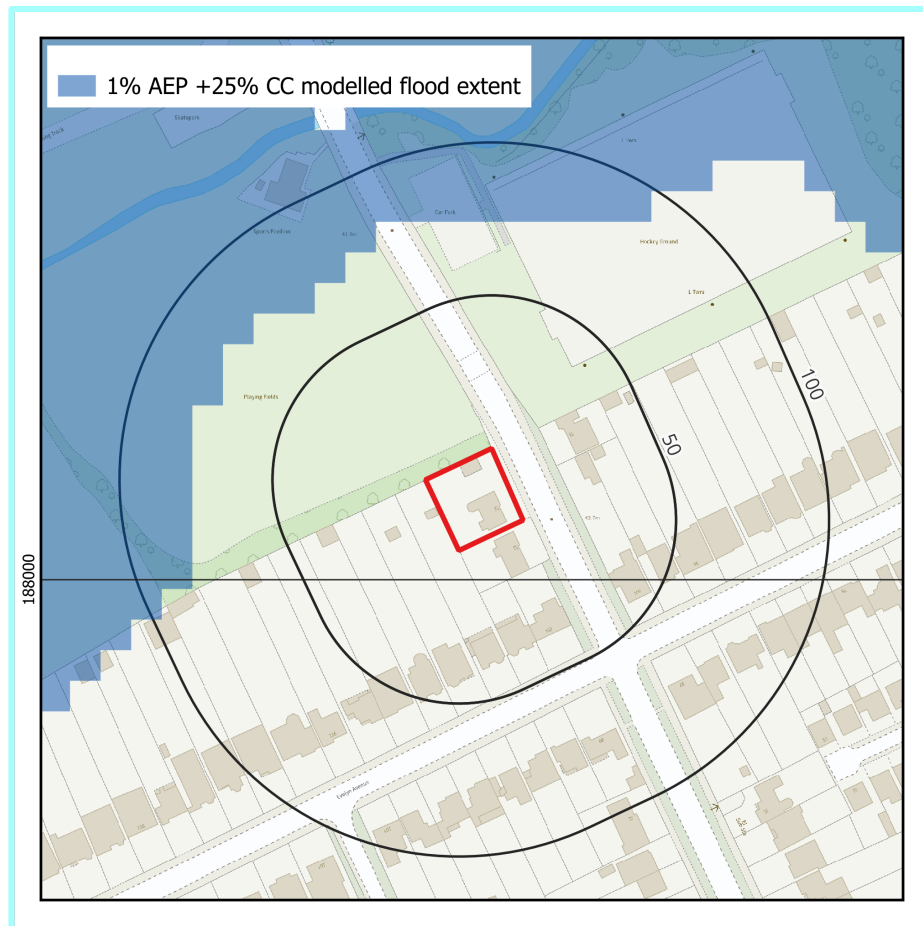
The Ruislip - Park Wood and Pinn Meadows Modelling Study (Jacobs, 2021) includes a modelled scenario for the 1 in 100 year event including a 25% allowance for climate change, which has been used to identify a suitable increase in river flows from the River Pinn.

Table 4. Flood levels plus climate change allowances

Flood data	Flooding scenario
	1 in 100 year plus 25% allowance for climate change
Modelled flood level (mAOD)	41.34
Flood depths (m)*	No flooding anticipated

*Compared to ground levels at the Site between 42.06 and 42.96 mAOD.

Figure 11. Defended Modelled climate change flooding scenario (Jacobs, 2021)



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Ruislip - Park Wood and Pinn Meadows FAS Modelling study, Jacobs, 2021

Surface water (pluvial) flooding

Surface water flooding occurs when intense rainfall exceeds the infiltration capacity of the ground and overwhelms the drainage systems. It can occur in most locations even at higher elevations and at significant distances from river and coastal floodplains.

According to the EA's Surface Water Spatial Planning dataset, the Site is at a variable risk of pluvial flooding ranging from Very Low to High². Figure 12 (overleaf) confirms the extent and depth of flooding in multiple modelled flood scenarios in the present day:

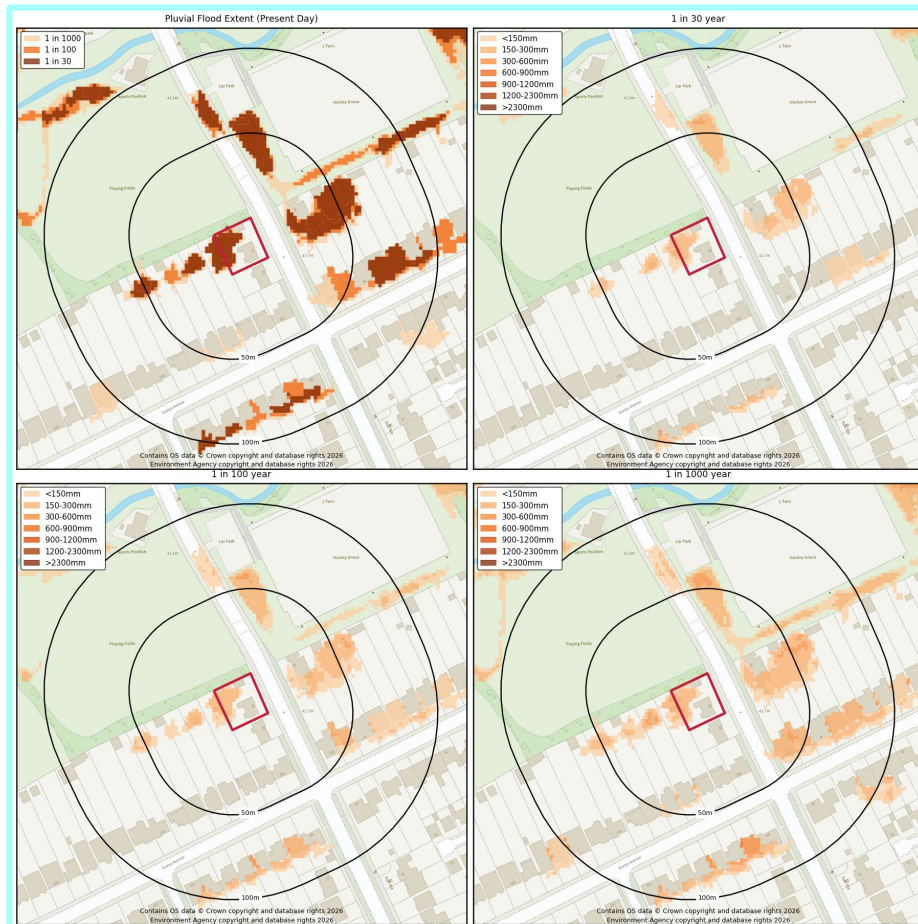
- During all modelled pluvial events (>3.3% – 0.1% AEP), flooding of up to 0.30 m is modelled to impact an area at the west of the Site, associated with a topographic compared the surrounding ground levels. During the High, Medium and Low risk event an approximate flood level of 42.30 mAOD has been identified via a comparison between LiDAR elevation contours and the flood extent.

² Environment Agency (2025). Risk of flooding from surface water – understanding and using the map. Accessed from: <https://www.gov.uk/government/publications/flood-risk-maps-for-surface-water-how-to-use-the-map>

- During the Low risk event isolated areas where flooding could reach up to 0.60 m however this again remains confined to landscaped areas at the west of the Site.

Pluvial flooding is largely modelled to not affect the adjacent Kings College Road and is therefore unlikely to affect access and egress during all modelled flood events.

Figure 12. EA Surface Water Spatial Planning dataset (present-day) (EA, 2026)



Guidance

According to EA's surface water flood risk map, areas of the Site are at:

- Very Low risk - chance of flooding of less than 1 in 1000 (0.1%).
- Low risk - chance of flooding of between 1 in 1000 & 1 in 100 (0.1% and 1%).
- Medium risk - chance of flooding of between 1 in 100 and 1 in 30 (1% and 3.3%).
- High risk - chance of flooding of greater than 1 in 30 (3.3%).

Interactive mapping as part of the SFRA (Metis Consultant, 2018) does not note instances of historical flooding specially attributed to surface water flooding. The mapping does highlight the Site is located adjacent to Critical Drainage Area (unspecified).

Guidance

According to EA's surface water flood risk map the following advisory guidance applies to the Site:

Flood Depth

- 0.15 to 0.3 m - Flooding would: typically exceed kerb height, likely exceed the level of a damp-proof course, cause property flooding in some areas
- 0.3 to 0.9 m - Flooding is likely to exceed average property threshold levels and cause internal flooding. Resilience measures are typically effective up to a water depth of 0.6 m above floor level.

Surface water flooding flow routes

Analysis of OS mapping, ground elevation data and the EA's Overland Flow Pathways mapping confirms the Site is not located on a potential overland flow route.

Based on the available data, the mapped pluvial flood risk during this event is considered representative of isolated ponding in a topographic low rather than significant overland flow.

Climate change factors

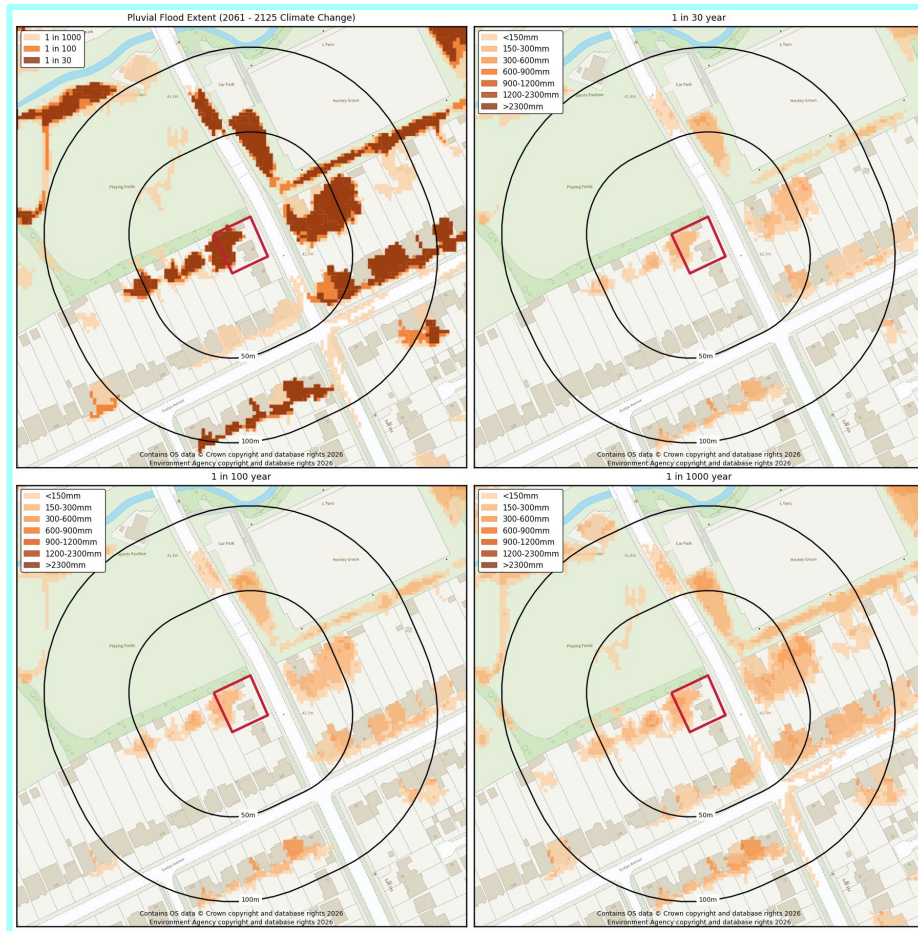
Paragraph 002 of the National Planning Practice Guidance (2025) requires consideration of the 1% AP (1 in 100 year) event, including an appropriate allowance for climate change.

As the Site is located within the Colne Management Catchment and the proposed development is classed as More Vulnerable, where the proposed lifespan is approximately 100 years, the Upper End (40%) allowance is required to determine a suitable climate change factor to apply to rainfall data.

As part of the EA's Surface Water Spatial Planning dataset, climate change scenarios have been produced to indicate the predicted impacts of climate change on future surface water flood risk. The upper end allowance for the 2070s epoch (2061-2125) has been used for the climate change scenarios, which is considered suitable to assess the risk of flooding over the lifetime of the proposed development.

Taking into account the effects of climate change, the modelled future pluvial flood extents and depths are broadly comparable to those discussed for the present-day modelling, with flood remaining confined to the localised depression to the west.

Figure 13. EA Surface Water Spatial Planning dataset (2061-2125) (EA, 2026)

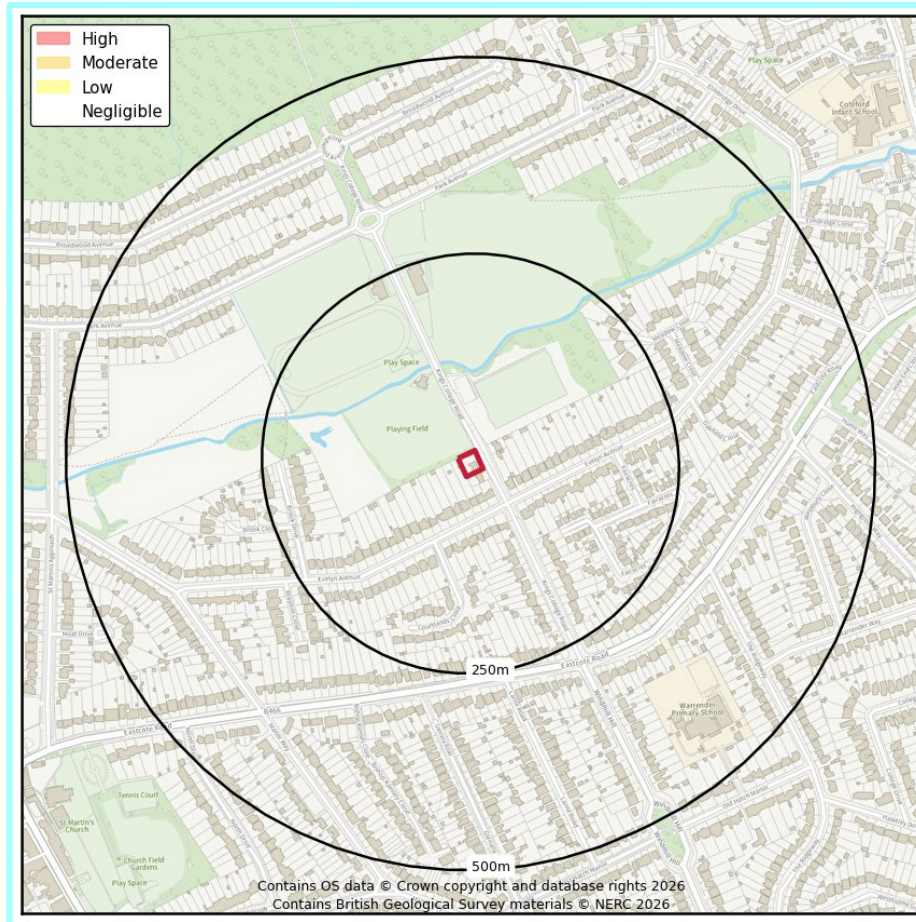


Groundwater flooding

Groundwater flooding occurs when sub-surface water emerges from the ground at the surface or into Made Ground and structures. This may be as a result of persistent rainfall that recharges aquifers until they are full; or may be as a result of high river levels, or tides, driving water through near-surface deposits. Flooding may last a long time compared to surface water flooding, from weeks to months. Hence the amount of damage that is caused to property may be substantially higher.

Groundwater Flood Risk screening data (Figure 14) indicates there is a Negligible risk of groundwater flooding at the surface in the vicinity from permeable bedrock and superficial aquifers during a 1 in 100 year event.

Figure 14. GeoSmart GW5 Groundwater Flood Risk Map (GeoSmart, 2026)



Mapped classes within the screening map combine likelihood, possible severity and the uncertainty associated with predicting the subsurface system. The map is a national scale screening tool to prompt site-specific assessment where the impact of groundwater flooding would have significant adverse consequences. Mapping limitations and a number of local factors may reduce groundwater flood risk to land and property even where it lies within mapped groundwater flood risk zones, which do not mean that groundwater floods will occur across the whole of the risk area.

A site-specific assessment has been undertaken to refine the groundwater risk screening information on the basis of site-specific datasets (see Section 3) including BGS borehole data, and the EA's fluvial floodplain data to develop a conceptual groundwater model. The risk rating is refined further using the vulnerability of receptors including occupants and the existing and proposed Site layout, including the presence of basements and buried infrastructure. The presence of any nearby or on-Site surface water features such as drainage ditches, which could intercept groundwater have also been considered.

- It is understood there are no existing basements and a basement is not proposed as part of the development. The risks are higher for basements, buried infrastructure and soakaway systems which may be affected by high groundwater levels.
- According to a review of the hydrogeology (Section 3), the Site is underlain by predominantly low permeability superficial deposits above low permeability bedrock. There is therefore unlikely to be a significant aquifer beneath the Site and there is unlikely to be a mechanism for groundwater flooding at the Site.
- However, despite the presence of an aquifer, the Site would only be at risk of groundwater flooding if the water table reaches the base of the Site development or the ground surface, when groundwater seepage could lead to overland flow and ponding.

The surrounding topography suggests that groundwater seepage is more likely to occur to the north of the Site and the lower lying ground.

- Whilst borehole TQ08NE163 only recorded slight seepage at a depth of 2.0 m bgl with no recorded significant strike; borehole TQ08NE162 recorded a groundwater level of 3.0 m bgl in June 1990. This should be caveated that the boreholes are located at a significant distance and are unlikely to reflect the groundwater conditions beneath the Site.
- Interactive mapping produced to support the West London SFRA (Metis Consultants, 2018) includes the EA's Areas Susceptible to Groundwater Flooding mapping, which was developed as a screening tool for Local Authorities at a strategic scale. This mapping indicates that the Site is located in a 1 km square where between 25 and 50% of the land is susceptible to groundwater emergence.
- The SFRA web mapping (Metis Consultants, 2018) also includes the Greater London Authority (GLA) Increased Potential for Elevated Groundwater mapping, which confirms the Site is mapped within an area at increased potential for elevated groundwater, within "permeable superficial deposits".
- Spring lines have not been identified in close proximity to the Site.

The hydrogeological characteristics suggest there is unlikely to be a shallow groundwater table beneath the Site. The baseline groundwater flood risk rating is Negligible, and further analysis confirms that this would be appropriate for the Site.

Guidance

Negligible Risk - There will be a remote possibility that incidence of groundwater flooding could lead to damage to property or harm to other sensitive receptors at, or near, this location.

Climate change predictions suggest an increase in the frequency and intensity of extremes in groundwater levels. The impact of climate change on groundwater levels beneath the Site is linked to the variation in rainfall recharge, which is uncertain.

- Rainfall recharge patterns will vary regionally resulting in changes to average groundwater levels.

Flooding from artificial sources

Artificial sources of flood risk include waterbodies or watercourses that have been amended by means of human intervention rather than natural processes. Examples include reservoirs (and associated water supply infrastructure), docks, sewers and canals. The flooding mechanism associated with flood risk from artificial sources is primarily related to breach or failure of structures (reservoir, lake, sewer, canal, flood storage areas, etc.)

Sewer flooding

Flooding from the sewer network can occur when flow entering the system exceeds its available discharge capacity, the system becomes blocked or it cannot discharge due to a high water level in the receiving watercourse. Water then begins to back up through the sewers and surcharge through manholes, potentially flooding highways, and properties.

Interactive mapping produced to support the West London SFRA (Metis Consultants, 2018) identifies no incidences of flooding as a result of surcharging sewers within the HA4 7 postcode.

Properties classified as “at risk” are those that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system either once or twice in the ten year reference period. Records held by the sewage utility company provide information relating to reported incidents, the absence of any records does not mean that the Site is not at risk of flooding.

Canal failure

Canals typically present a residual risk to Site rather than a direct flood risk due to the water levels being highly managed within an operating zone. Flooding can still occur from canals as a result of overtopping due to prolonged rainfall or embankment failure.

According to Ordnance Survey (OS) mapping, there are no canals within 500 m of the Site and therefore the risk is considered to be Negligible.

Water supply infrastructure

Water supply infrastructure is comprised of a piped network to distribute water to private houses or industrial, commercial or institution establishments and other usage points. In urban areas, this represents a particular risk of flooding due to the large amount of water supply infrastructure, its condition and the density of buildings.

The risks of flooding to properties from burst water mains cannot be readily assessed.

If more information regarding the condition and history of the water supply infrastructure within the vicinity of the Site is required, then it is advisable to contact the local water supplier, Affinity Water.

Culverts and bridges

The blockage of watercourses or structures by debris (that is, any material moved by a flowing stream including vegetation, sediment and man-made materials or refuse) reduces flow capacity and raises water levels, potentially increasing the risk of flooding. High water levels can cause saturation, seepage and percolation leading to failure of earth embankments or other structures. Debris accumulations can change flow patterns, leading to scour, sedimentation or structural failure.

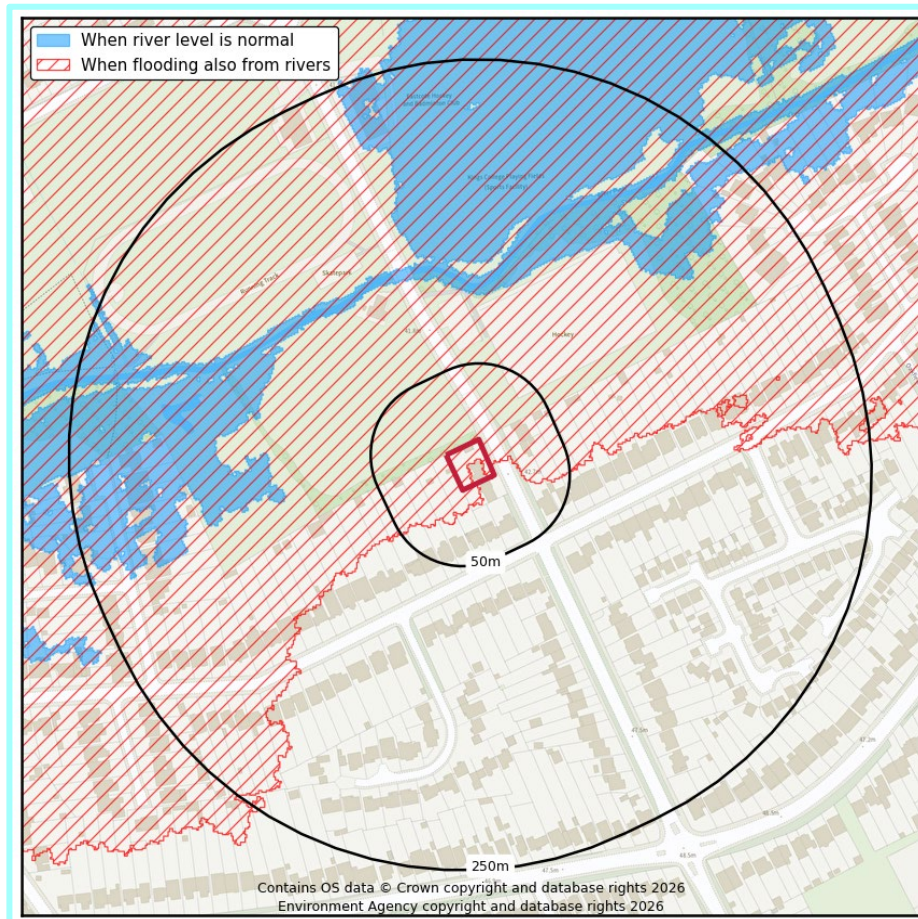
Culverts and bridges have been identified within the vicinity of the Site. However, these structures are a significant distance from the Site and are therefore deemed unlikely to represent a flood risk to the Site in the event of a blockage.

Reservoir flooding

According to the EA's Risk of Flooding from Reservoir mapping the Site is at risk of flooding from reservoirs during a "wet day" scenario only (Figure 15) (EA, 2026).

- The "wet day" scenario predicts how much worse the flooding might be if a river is already experiencing an extreme natural flood. The combination of both reservoir and flood defence breaches are considered extremely unlikely.

Figure 15. EA Risk of Reservoir Flooding (EA, 2026)



Guidance

The risk of reservoir flooding is related to the failure of a large reservoir (holding over 25,000 m³ of water) and is based on the worst-case scenario. Reservoir flooding is extremely unlikely to occur (EA, 2026).

5. Flood risk from the development

Floodplain storage

Where flood storage from any source of flooding is to be lost as a result of development, on-site level-for-level compensatory storage, accounting for the predicted impacts of climate change over the lifetime of the development, should be provided. Where it is not possible to provide compensatory storage on site, it may be acceptable to provide it off-site if it is hydraulically and hydrologically linked.

The loss of floodplain storage is less likely to be a concern in areas benefitting from appropriate flood risk management infrastructure or where the source of flood risk is solely tidal.

The development is located within fluvial Flood Zone 2 and involves an increase in building footprint but would not be impacted by the 1 in 100 year plus 25% climate change event. Therefore, there would be no displacement of flood water and compensatory flood storage is not required.

Drainage and run-off

Based on the topography and surface water flood risk in the vicinity, interference or interaction with overland flow paths and inflows from off-Site is considered unlikely.

The development proposals will result in a slightly larger garage footprint however are not considered likely to result in a significant increase in impermeable area or surface water runoff from the Site. On this basis, detailed surface water runoff calculations are not considered to be required.

Any changes to the existing drainage system will be undertaken in accordance with best practice and care will be taken to ensure the new development does not overload/block any existing drainage or flow pathways to/from the Site.

6. Suitability of the proposed development

The information below outlines the suitability of proposed development in relation to national and local planning policy.

National policy and guidance

The aims of the national planning policies are achieved through application of the Sequential Test and in some cases the Exception Test.

Guidance

Sequential test: The aim of this test is to steer new development towards areas with the lowest risk of flooding (NPPF, 2024). Reasonably available sites located in Flood Zone 1 should be considered before those in Flood Zone 2 and only when there are no reasonably available sites in Flood Zones 1 and 2 should development in Flood Zone 3 be considered.

Exception test: In some cases, this may need to be applied once the Sequential Test has been considered. For the exception test to be passed it must be demonstrated that the development would provide wider sustainability benefits to the community that outweigh flood risk and a site-specific FRA must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

Suitability of the proposed development, and whether the Sequential and Exception Tests are required, is based on the risk of flooding from all sources aiming to steer development towards low-risk areas. The flood risk vulnerability classification of the existing and proposed development must also be compatible with the respective Flood Zone. Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

This report has been produced to assess all development types, prior to any development. The vulnerability classification and Flood Zones are compared within the table overleaf (Table 2 of the NPPG (2025)).

The proposed development is for works to a garage serving the existing property and is defined as minor development.

Paragraph 176 of the NPPF (2024) states: “Applications for some minor development and changes of use 62 should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments set out in footnote 63”.

The NPPG (2025) defines a ‘minor development’ as “householder development and small non residential extensions (with a footprint of less than 250 m²).” As a result, the proposals are not subject to the Sequential Test or an Exception Test.

Table 5. Flood risk vulnerability and flood zone ‘incompatibility (taken from NPPG, 2025)

Flood risk vulnerability classification		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood Zone	Zone 1 – low probability	✓	✓	✓	✓	✓
	Zone 2 – medium probability	✓	✓	Exception test required	✓	✓
	Zone 3a – high probability	Exception test required	✓	X	Exception test required	✓
	Zone 3b – functional flood plain	Exception test required	✓	X	X	X

EA Flood Risk Standing Advice for vulnerable developments located in Flood Zones 2 or 3 (February, 2022)

The proposed development is considered to be a minor extension; this is defined as a household or non-domestic extension with a floor space of no more than 250 m².

In line with the ‘Minor extensions standing advice’:

- A plan is required showing the finished floor levels and the estimated flood levels.
- Floor levels are either no lower than existing floor levels or 0.3 m above the estimated flood level. If your floor levels aren’t going to be 0.3 m above existing flood levels, you need to check with your local planning authority if you also need to take flood resistance and resilience measures.

For all relevant vulnerable developments (i.e. more vulnerable, less vulnerable and water compatible), advice on the points should be followed:

- Surface water management;
- Access and evacuation; and,
- Floor levels.

Surface water management

Plans for the management of surface water need to meet the requirements set out in either the local authority's:

- Surface water management plan where available; OR,
- Strategic flood risk assessment.

They also need to meet the requirements of the approved building regulations Part H: drainage and water disposal. Read section H3 rainwater drainage.

Planning permission is required to use a material that can't absorb water (e.g. impermeable concrete) in a front garden larger than 5m².

Access and evacuation

Details of emergency escape plans should be provided for any parts of a building that are below the estimated flood level.

Plans should show:

- Single storey buildings or ground floors that don't have access to higher floors can access a space above the estimated flood level, e.g. higher ground nearby;
- Basement rooms have clear internal access to an upper level, e.g. a staircase;
- Occupants can leave the building if there's a flood and there's enough time for them to leave after flood warnings.

Floor levels

The following should be provided:

- Average ground level of your site;
- Ground level of the access road(s) next to your building; and,
- Finished floor level of the lowest room in your building.

Finished floor levels should be a minimum of whichever is higher of 300 mm above the:

- Average ground level of the site;
- Adjacent road level to the building; OR
- Estimated river or sea flood level.

You should also use construction materials that have low permeability up to at least the same height as finished floor levels.

If you cannot raise floor levels to meet the minimum requirement, you will need to:

- Raise them as much as possible;
- Consider moving vulnerable uses to upper floors; and,
- Include extra flood resistance and resilience measures.

When considering the height of floor levels, you should also consider any additional requirements set out in the SFRA. Flood water can put pressure on buildings causing structural issues. If your design aims to keep out a depth of more than 600 mm of water, you should get advice from a structural engineer. They will need to check the design is safe.

Extra flood resistance and resilience measures

Follow the guidance in this section for developments in flood risk areas where you cannot raise the finished floor levels to the required height. You should design buildings to exclude flood water where possible and to speed recovery in case water gets in.

Make sure your flood resilience plans for the development follow the guidance in the CIRIA Property Flood Resilience Code of Practice. Please note that the code of practice uses the term 'recovery measures'. In this guide we use 'resilience measures'.

Flooding can affect the structural stability of buildings. If your building design would exclude more than 600 mm of flood water, you should get advice from a structural engineer. They will need to check the design is safe. Only use resistance measures that will not cause structural stability issues during flooding. If it is not possible to safely exclude the estimated flood level, exclude it to the structural limit then allow additional water to flow through the property.

The design should be appropriately flood resistant and resilient by:

- Using flood resistant materials that have low permeability to at least 600 mm above the estimated flood level;
- Making sure any doors, windows or other openings are flood resistant to at least 600 mm above the estimated flood level;
- Using flood resilient materials (for example lime plaster) to at least 600 mm above the estimated flood level;
- By raising all sensitive electrical equipment, wiring and sockets to at least 600 mm above the estimated flood level;
- Making it easy for water to drain away after flooding such as installing a sump and a pump;
- Making sure there is access to all spaces to enable drying and cleaning; and,
- Ensuring that soil pipes are protected from back-flow such as by using non-return valves.

Temporary or demountable flood barriers are not appropriate for new buildings. Only consider them for existing buildings when:

- There is clear evidence that it would be inappropriate to raise floor levels and include passive resistance measures; and,
- An appropriate flood warning or other appropriate trigger is available.

If proposals involve the development of buildings constructed before 1919, refer to Flooding and Historic Buildings guidance produced by Historic England.

7. Resilience and mitigation

Based on the flood risk identified at the Site, the national and local policies and guidance and proposed development, the mitigation measures outlined within this section of the report are likely to help protect the development from flooding.

Sea (coastal/tidal) flood mitigation measures

As the Site is not identified as being at risk of flooding from the sea, mitigation measures are not required.

Rivers (fluvial) flood mitigation measures

As the Site is not identified as being at risk of flooding from fluvial sources, mitigation measures are not required.

Typically, in accordance with the EA's Flood Risk Standing Advice, finished floor levels (FFLs) should be set 0.30 m above the surrounding external ground levels to reduce the residual risk of flooding. However, given that the ground floor element of the proposed building comprises a garage, raising the finished floor level is not considered necessary or proportionate to the identified level of flood risk

Surface water (pluvial) flood mitigation measures

A Very Low to High surface water (pluvial) flooding risk has been identified at the Site. In order to ensure the development includes sufficient flood mitigation measures to reduce the risk of pluvial flooding over its lifetime, the flood depths, levels and appropriate mitigation measures have been assessed.

Finished Floor Levels of the proposed development should be set at least 0.15 m above the maximum 1 in 100 year event flood level to 42.45 mAOD. Where FFLs cannot be raised to the required height, this is considered acceptable on the basis that the ground floor use is for a garage.

Formal flood resistance measures are not considered necessary for the ground floor garage however any electrical equipment, services or valuable items should be raised above the flood level to reduce damage and aid recovery should internal flooding of the garage occur.

In addition, the regular maintenance of any drains surrounding/on the Site under the riparian ownership of the developer should be undertaken in-line with best practice.

Groundwater flood mitigation measures

As the Site is not identified as being at risk of groundwater flooding, mitigation measures are not required.

Reservoir flood mitigation measures

According to the EA data, the Site is at risk of flooding from reservoirs when there is also flooding from rivers.

There would be a relatively high rate and onset of flooding associated with a reservoir breach; therefore, it is unlikely that safe access could be achieved unless a long warning period was provided. Occupants should get to the highest level of the building as possible and contact the emergency services.

Other flood risk mitigation measures

As the Site is not identified as at risk from other sources, mitigation measures are not required.

Residual flood risk mitigation measures

The risk to the Site has been assessed from all sources of flooding and appropriate mitigation and management measures proposed to keep the users of the development safe over its lifetime. There is, however, a residual risk of flooding associated with the potential for failure of mitigation measures if regular maintenance and upkeep are not undertaken. If mitigation measures are not implemented or maintained, the risk to the development will remain as the baseline risk.

Further flood mitigation information

More information on flood resistance, resilience and water entry can be found here: http://www.planningportal.gov.uk/uploads/br/flood_performance.pdf

Emergency evacuation – safe access / egress and safe refuge

Emergency evacuation to land outside of the floodplain should be provided if feasible. Where this is not possible, More Vulnerable developments and, where possible, development in general (including basements), should have internal stair access to an area of safe refuge within the building to a level higher than the maximum likely water level. An area of safe refuge should be sufficient in size for all potential users and be reasonably accessible to the emergency services.

Emergency evacuation from the development and the Site should only be undertaken in strict accordance with any evacuation plans produced for the Site, with an understanding of the flood risks at the Site including available mitigation, the vulnerability of occupants and preferred evacuation routes.

Flood warnings

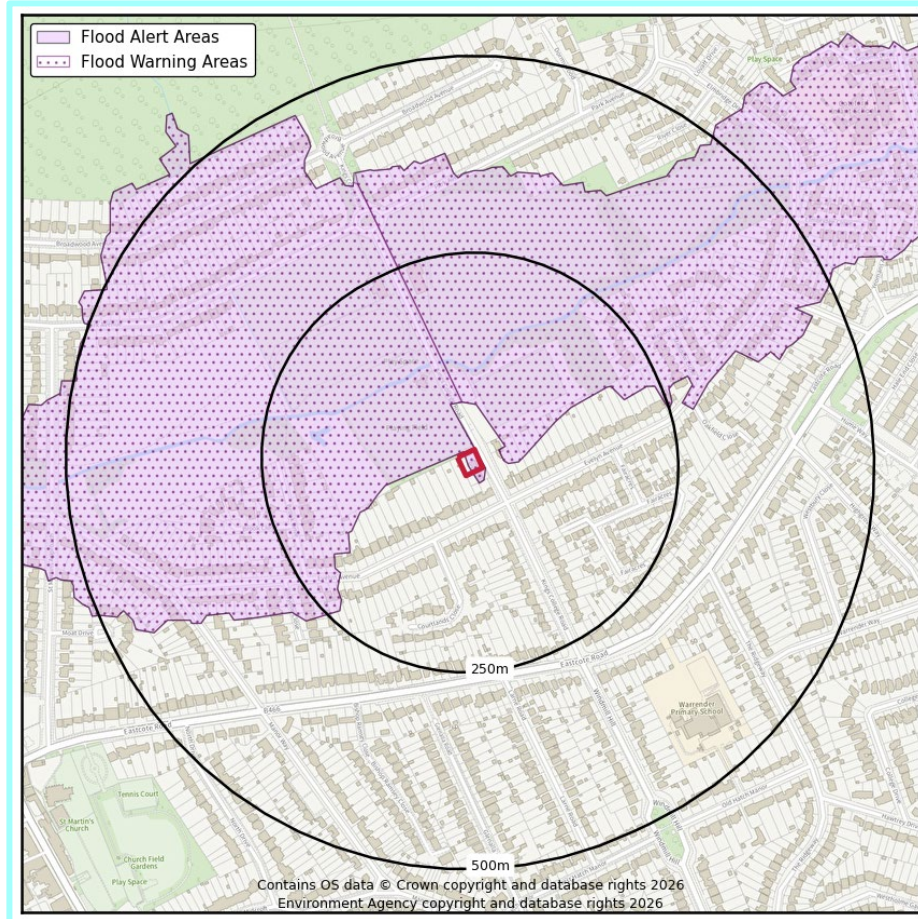
The EA operates a flood warning service in all areas at risk of flooding; this is available on their website: <https://www.gov.uk/check-flood-risk>. The Site is located within an EA Flood Alerts and Warning coverage area so is able to receive alerts and warnings (Figure 16). All warnings are also available through the EA's 24 hour Floodline Service (0345 988 1188).

- **Flood Alert:** 062WAF28Pinn; Quick Dial code: 172711

- **Flood Warning:** 062FWF28Ruislip; Quick Dial code: 172707

The EA aims to issue Flood Warnings 2 hours in advance of a flood event. Flood Warnings can provide adequate time to enable protection of property and evacuation from a Site, reducing risk to life and property.

Figure 16. EA Flood Warning Coverage for the local area (EA, 2026)



Emergency evacuation

Where possible, a safe access and egress route with a 'very low' hazard rating from areas within the floodplain to an area wholly outside the 1 in 100 year flood event including an allowance for climate change should be demonstrated.

Based on the EA's Flood Zone Map the closest dry evacuation area within Flood Zone 1 is to the south west of the Site. It is advised that evacuation from the premises would be the preferred option in a flood event if safe to do so. It is recommended that residents prepare to evacuate as soon as an EA Flood Warning is issued in order to completely avoid flood waters.

On-Site refuge

Evacuation should be the primary action in preference, however safe refuge could be sought at first floor level.

Other relevant information

Occupants should be signed up to receive EA Flood Alerts and Warnings.

Registration to the Environment Agency's flood warning scheme can be done by following this link: <https://www.gov.uk/sign-up-for-flood-warnings>.

8. Conclusions and recommendations

Table 6. Risk ratings following Site analysis

Source of Flood Risk	Baseline ¹	After analysis ²	After Mitigation ³
River (fluvial) flooding	Very Low		N/A
Sea (coastal/tidal) flooding	Very Low		N/A
Surface water (pluvial) flooding	Very Low to High		Very Low
Groundwater flooding	Negligible		N/A
Other flood risk factors present	No		N/A
Is any other further work recommended?	Yes (see below)		

1 BASELINE risks assigned for the whole Site, using national risk maps, including the benefit of EA flood defences and the impacts of climate change.

2 AFTER ANALYSIS modification of risk assessment based on detailed site specific analysis including some or all of the following: flood model data, high resolution mapping, building location, access routes, topographic and CCTV surveys. Reasons for the change in classification are provided in the text.

3 AFTER MITIGATION risks include risks to proposed development / asset and occupants if mitigation measures recommended in this report are implemented, including the impacts of climate change.

*N/A indicates where mitigation is not required.

The table overleaf provides a summary of where the responses to key questions are discussed in this report.

More vulnerable developments in a Flood Zone 2 are acceptable according to the NPPF and providing the recommended mitigation measures are put in place (see previous sections) it is likely that flood risk to this Site will be reduced to an acceptable level.

Table 7. Summary of responses to key questions in the report

Key sources of flood risks identified	Surface water (see Section 4).
Are standard mitigation measures likely to provide protection from flooding to/from the Site?	Yes (see Section 7).
Is any further work recommended?	Yes (See exec summary and Section 7)

9. Further information

The following table includes a list of additional products by GeoSmart:

Additional GeoSmart Products		
	Additional assessment: 	The SuDSmart Report range assesses which drainage options are available for a Site. They build on technical detail starting from simple infiltration screening and work up to more complex SuDS Assessments detailing alternative options and designs. Please contact info@geosmartinfo.co.uk for further information.
	Additional assessment: 	Provides a robust desk-based assessment of potential contaminated land issues, taking into account the regulatory perspective. Our EnviroSmart reports are designed to be the most cost effective solution for planning conditions. Each report is individually prepared by a highly experienced consultant conversant with Local Authority requirements. Ideal for pre-planning or for addressing planning conditions for small developments. Can also be used for land transactions. Please contact info@geosmartinfo.co.uk for further information.

10. References and glossary

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Glossary

General terms

BGS	British Geological Survey
EA	Environment Agency
GeoSmart groundwater flood risk model	GeoSmart's national groundwater flood risk model takes advantage of all the available data and provides a preliminary indication of groundwater flood risk on a 50m grid covering England and Wales. The model indicates the risk of the water table coming within 1 m of the ground surface for an indicative 1 in 100 year return period scenario.
Dry-Island	An area considered at low risk of flooding (e.g. In a Flood Zone 1) that is entirely surrounded by areas at higher risk of flooding (e.g. Flood Zone 2 and 3)
Flood resilience	Flood resilience or wet-proofing accepts that water will enter the building, but through careful design will minimise damage and allow the re-occupancy of the building quickly. Mitigation measures that reduce the damage to a property caused by flooding can include water entry strategies, raising electrical sockets off the floor, hard flooring.
Flood resistance	Flood resistance, or dry-proofing, stops water entering a building. Mitigation measures that prevent or reduce the likelihood of water entering a property can include raising flood levels or installation of sandbags.
Flood Zone 1	This zone has less than a 0.1% annual probability of river flooding
Flood Zone 2	This zone has between 0.1 and 1% annual probability of river flooding and between 0.1% and 0.5 % annual probability sea flooding
Flood Zone 3	This zone has more than a 1% annual probability of river flooding and 0.5% annual probability of sea flooding
Functional Flood Plain	An area of land where water has to flow or be stored in times of flood.
Hydrologic model	A computer model that simulates surface run-off or fluvial flow. The typical accuracy of hydrologic models such as this is $\pm 0.25\text{m}$ for estimating flood levels at particular locations.
OS	Ordnance Survey
Residual Flood Risk	The flood risk remaining after taking mitigating actions.
SFRA	Strategic Flood Risk Assessment. This is a brief flood risk assessment provided by the local council
SuDS	A Sustainable drainage system (SuDS) is designed to replicate, as closely as possible, the natural drainage from the Site (before development) to ensure that the flood risk downstream of the Site does not increase as a result of the land being developed. SuDS also significantly improve the quality of water leaving the Site and can also improve the amenity and biodiversity that a Site has to offer. There are a range of SuDS options

available to provide effective surface water management that intercept and store excess run-off. Sites over 1 Ha will usually require a sustainable drainage assessment if planning permission is required. The current proposal is that from April 2014 for more than a single dwelling the drainage system will require approval from the SuDS Approval Board (SABs).

Aquifer Types

Principal aquifer	These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.
Secondary A aquifer	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.
Secondary B aquifer	Predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.
Secondary undifferentiated	Has been assigned in cases where it has not been possible to attribute either category A or B to a rock type due to the variable characteristics of the rock type.
Unproductive Strata	These are rock layers or drift deposits with low permeability that has negligible significance for water supply or river base flow.

NPPF (2024) terms

Exception test	Applied once the sequential test has been passed. For the exception test to be passed it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk and a site-specific FRA must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.
Sequential test	Aims to steer new development to areas with the lowest probability of flooding.
Essential infrastructure	Essential infrastructure includes essential transport infrastructure, essential utility infrastructure and wind turbines.
Water compatible	Water compatible land uses include flood control infrastructure, water-based recreation and lifeguard/coastal stations.
Less vulnerable	Less vulnerable land uses include police/ambulance/fire stations which are not required to be operational during flooding and buildings used for shops/financial/professional/other services.
More vulnerable	More vulnerable land uses include hospitals, residential institutions, buildings used for dwelling houses/student halls/drinking establishments/hotels and sites used for holiday or short-let caravans and camping.
Highly vulnerable	Highly vulnerable land uses include police/ambulance/fire stations which are required to be operational during flooding, basement dwellings and caravans/mobile homes/park homes intended for permanent residential use.

Data sources

Aerial Photography	Contains Ordnance Survey data © Crown copyright and database right 2026 BlueSky copyright and database rights 2026
Bedrock & Superficial Geology	Contains British Geological Survey materials © NERC 2026 Ordnance Survey data © Crown copyright and database right 2026
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Flood Risk (Groundwater)	GeoSmart, BGS & OS GW5 (v2.4) Map (GeoSmart, 2026) Contains British Geological Survey materials © NERC 2026 Ordnance Survey data © Crown copyright and database right 2026
Location Plan	Contains Ordnance Survey data © Crown copyright and database right 2026
Topographic Data	OS LiDAR/EA Contains Ordnance Survey data © Crown copyright and database right 2026 Environment Agency copyright and database rights 2026

11. Appendices

Appendix A

Site plans

25, KINGS COLLEGE ROAD, RUISLIP, HILLINGDON, HA4 7JY



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AC0000808122 Created using Plans by Emapsite

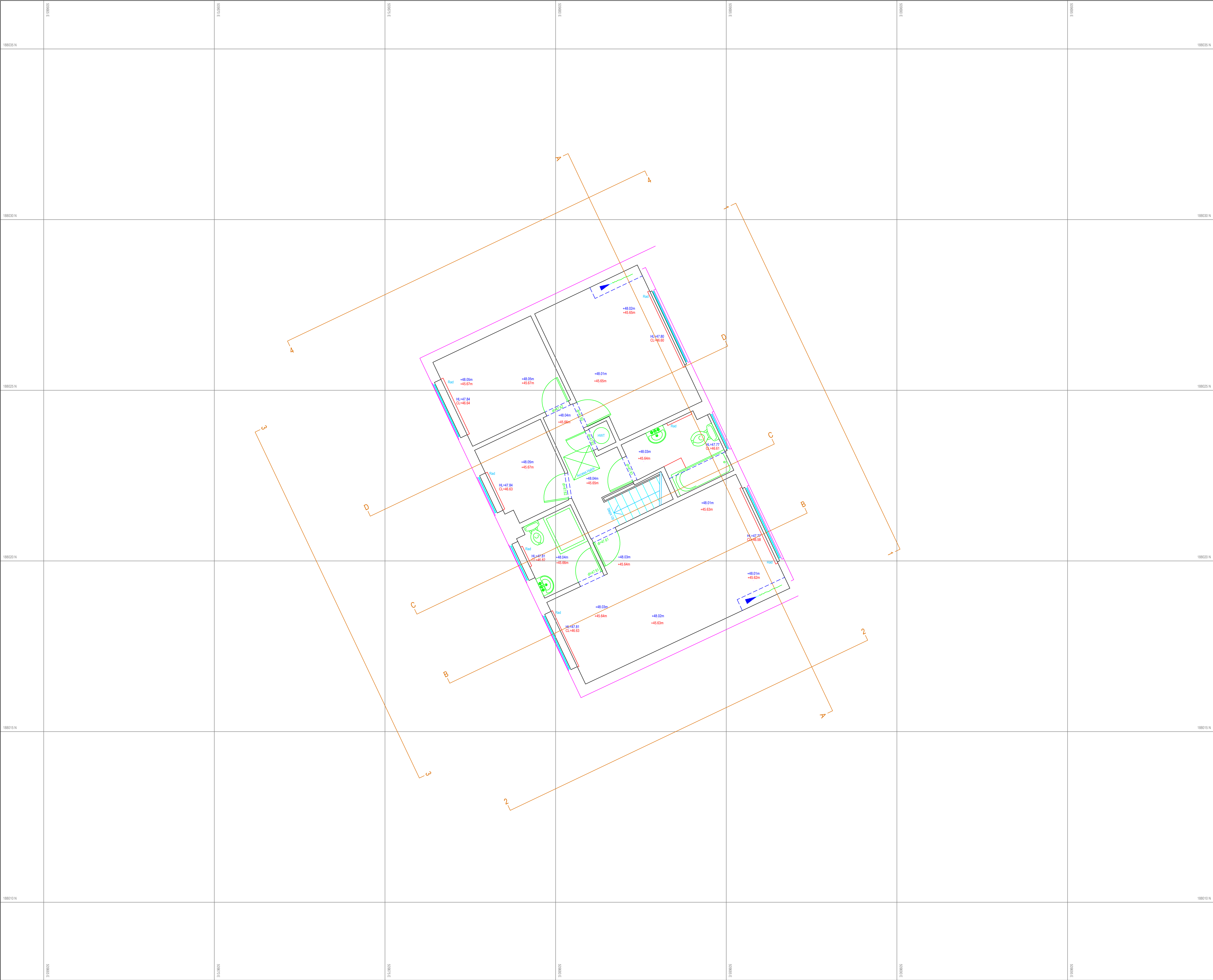
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Paper Size: A4

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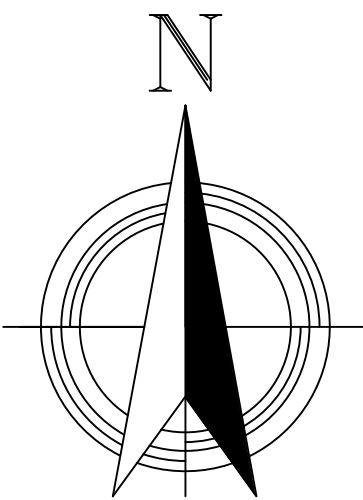




Legend

- BdB Bottom of Bank
- BT British Television
- CATV Cable Television
- CB Control Box
- CBF Closed Board Fence
- CBP Concrete Block Paving
- CL Cover Level
- CLF Chain Link Fence
- CPS Concrete Paving Slabs
- DC Drainage Channel
- DP Down Pipe
- ER Earth Rod
- FB Flowerbed
- FH Fire Hydrant
- FP Flag Pole
- G Gully
- GV Gas Valve
- IC Inspection Cover
- IRF Iron Railing Fence
- IL Invert Level
- KW Kerb Weir
- LP Lamp Post
- MH Manhole
- MKR Marker Post
- PRF Post & Rail Fence
- PS Pipe Size
- FWF Post and Wire Fence
- RE Rodding Eye
- RN Road Name
- RS Road Sign
- SY Stay Wire
- 0.3/4/8 Trunk(Dia)/Spread(Dia)/Height(Approx)
- ToB Top of Bank
- TP Telegraph Pole
- VP Vent Pipe
- WV Water Valve

- HL Window Head Level
- CL Window Cill Level
- dl Head of Door Level
- +52.00m Ceiling / Soffit Level
- +50.00m Floor Level



Client

Wadhal
Unit 6, High Street House
83 Askew Road
London
W12 9AH

Project Description

25 Kings College Road
Ruislip

First Floor Plan

Levelling	Scale
All levels and coordinates relate to Ordnance Survey Grid and Datum.	1:100 @ A1
	Date of Survey
	October 2021

Drawing Number

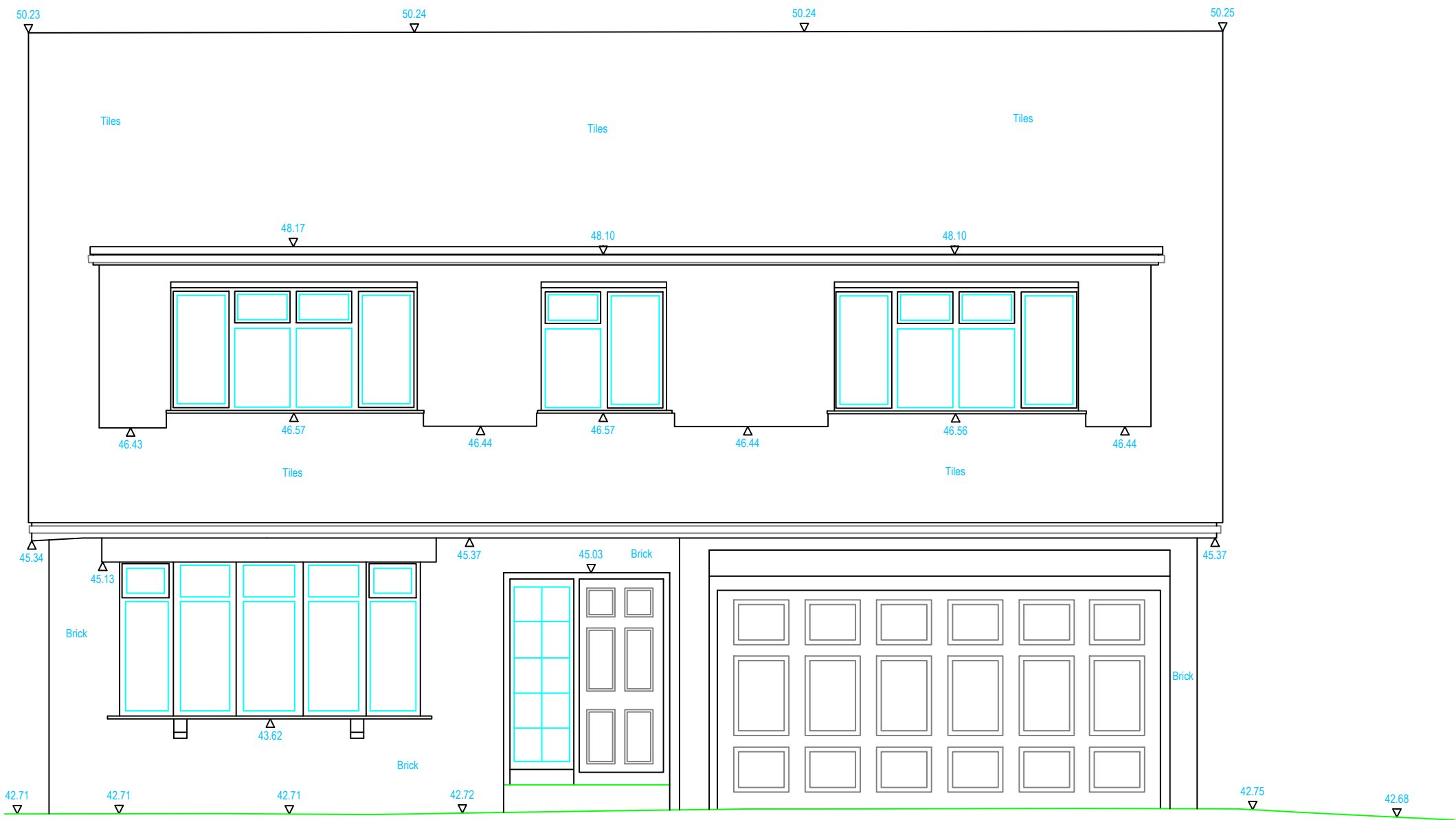
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TB

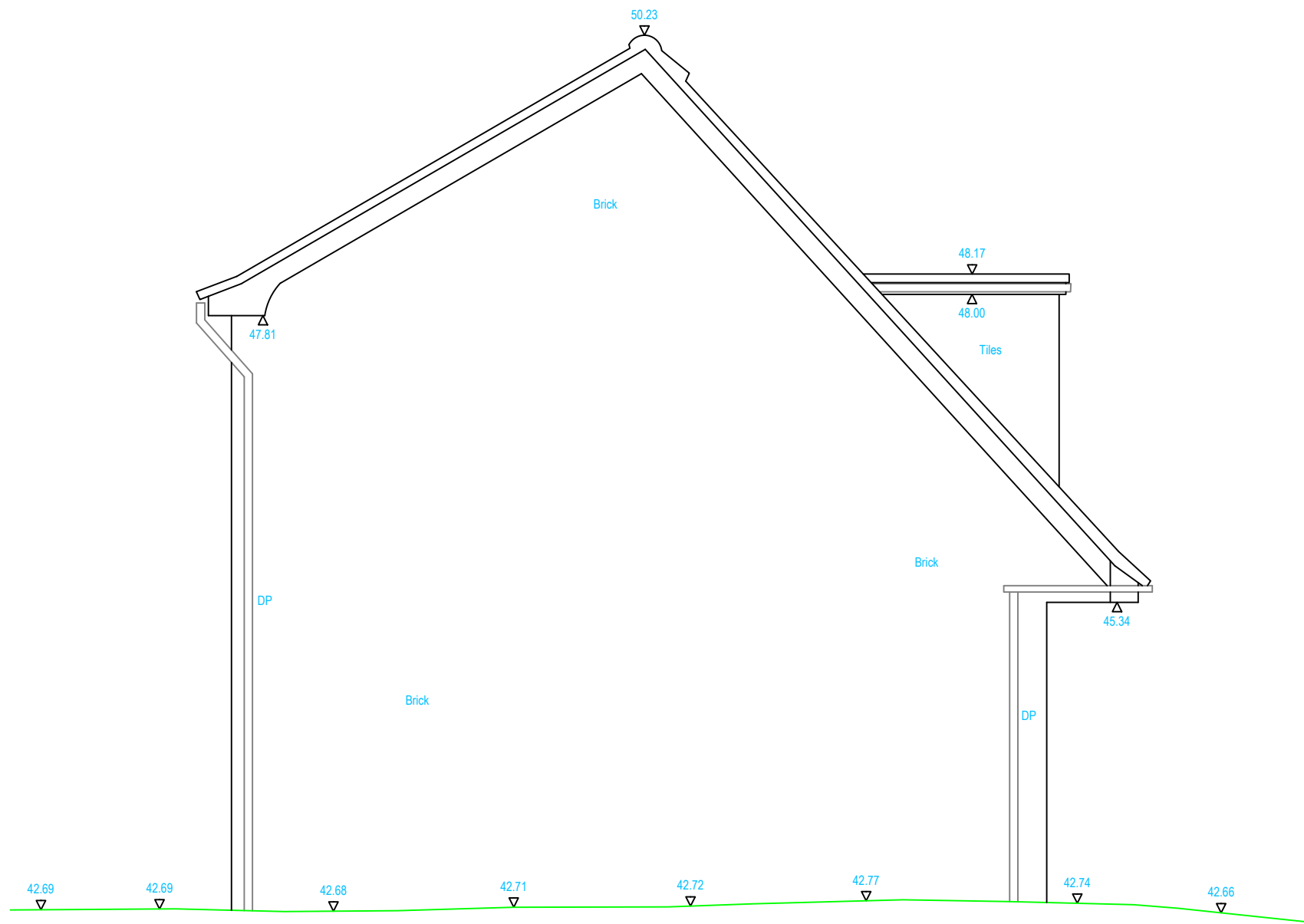
 **Total Geomatics**

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Smeaton Close
Aylesbury, Buckinghamshire
HP19 8SU

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mail@totalgeomatics.co.uk



Elevation 1-1

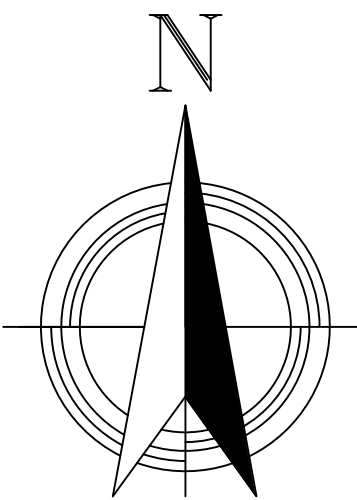


Elevation 2-2

Legend

- BoB Bottom of Bank
- BT British Telecom
- CATV Cable Television
- CB Control Box
- CBF Closed Board Fence
- CBP Concrete Block Paving
- CL Cover Level
- CLF Chain Link Fence
- CPS Concrete Paving Slabs
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- LP Lamp Post
- MH Manhole
- MKR Marker Post
- PRF Post & Rail Fence
- PS Pipe Size
- FWF Post and Wire Fence
- RE Rodding Eye
- RN Road Name
- RS Road Sign
- SY Stay Wire
- 0.34/8 Trunk(Dia)/Spread(Dia)/Height(Approx)
- ToB Top of Bank
- TP Telegraph Pole
- VP Vent Pipe
- WV Water Valve

- HL Window Head Level
- CL Window Cill Level
- dl Head of Door Level
- +52.00m Ceiling / Soffit Level
- +50.00m Floor Level



Client

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83 Askew Road
London
W12 9AH

Project Description

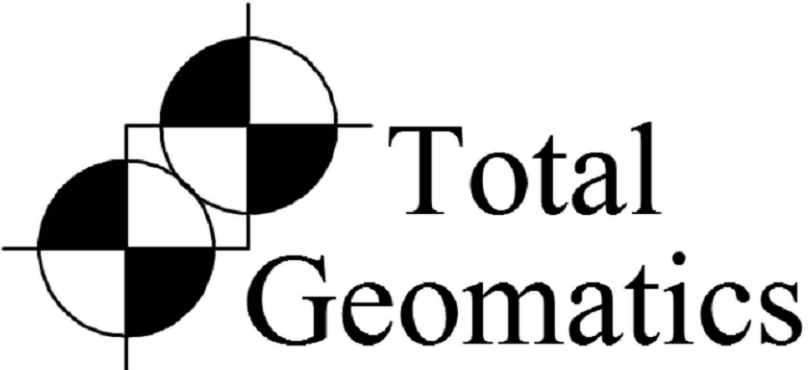
25 Kings College Road
Ruislip

Elevations

Levelling	Scale
All levels and coordinates relate to Ordnance Survey Grid and Datum.	1:100 @ A1
	Date of Survey
	October 2021

Drawing Number

TG-21-1305-01 (Page 1 of 3) TB



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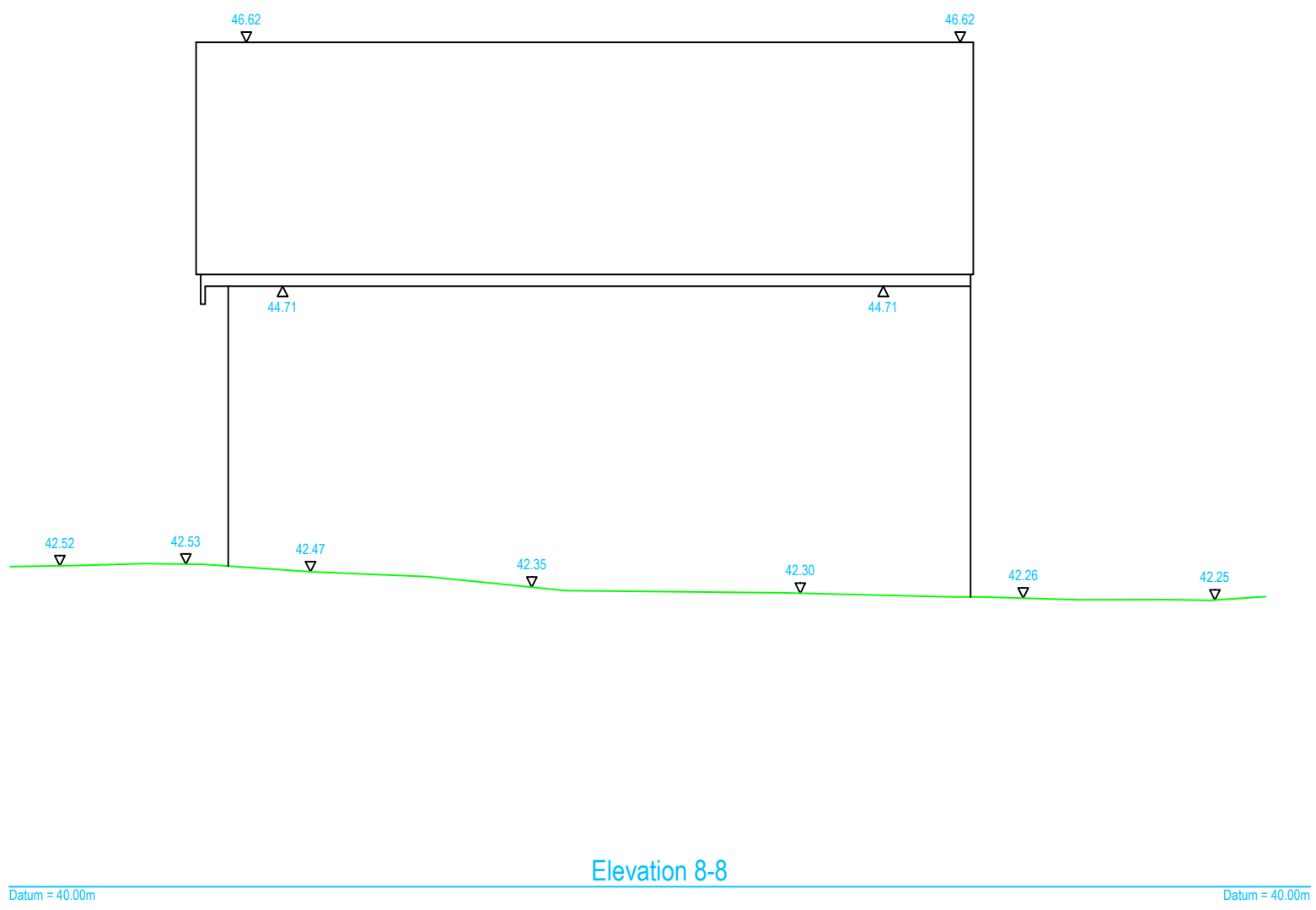
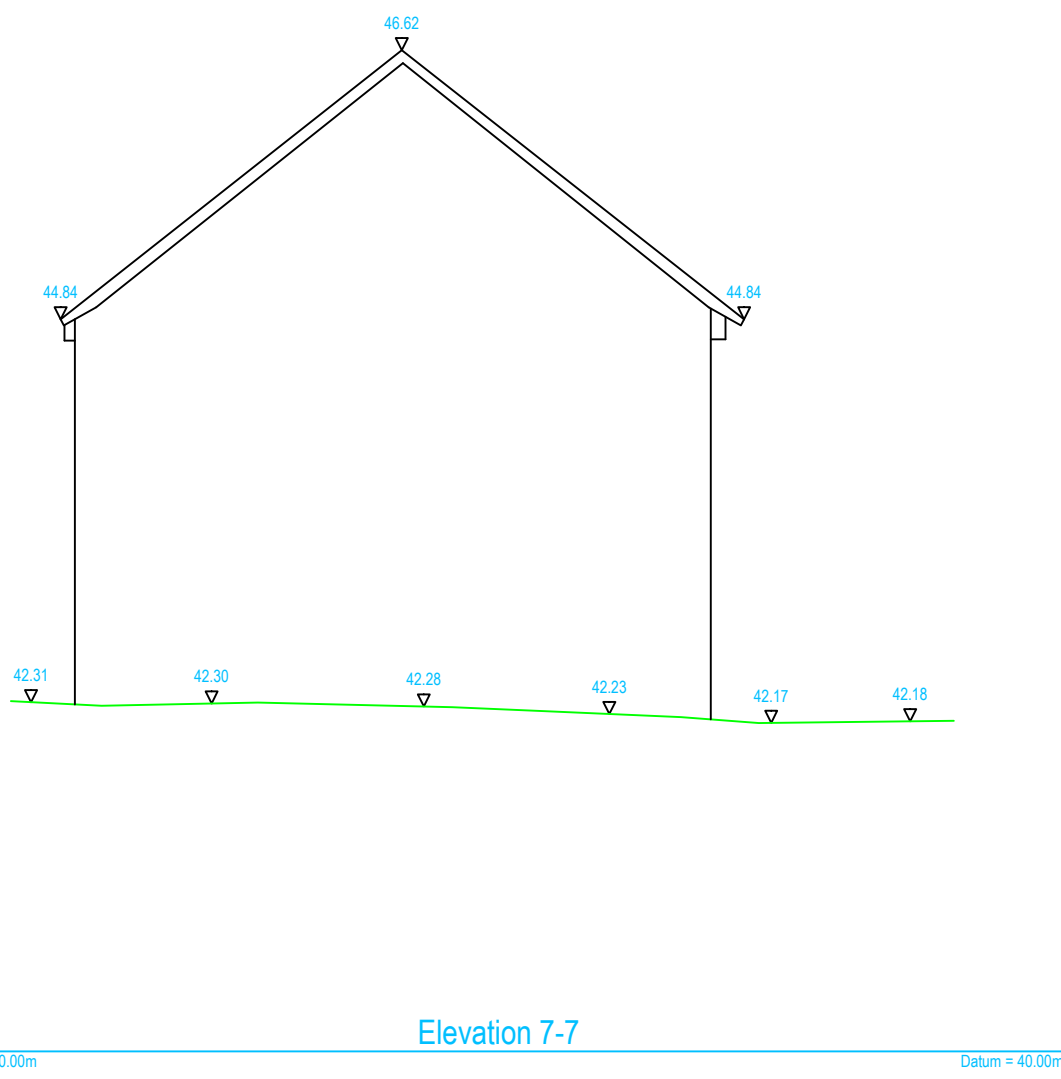
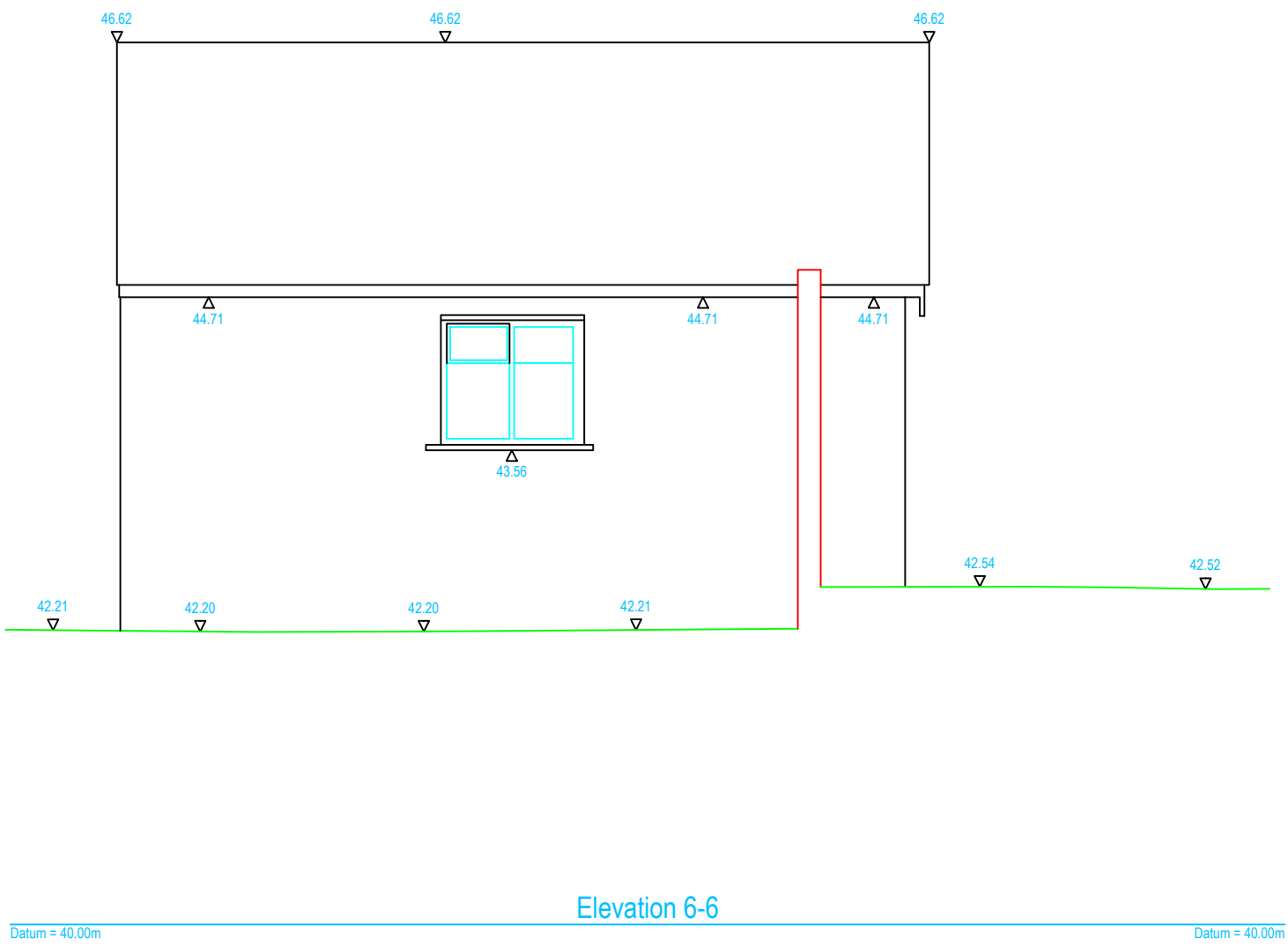
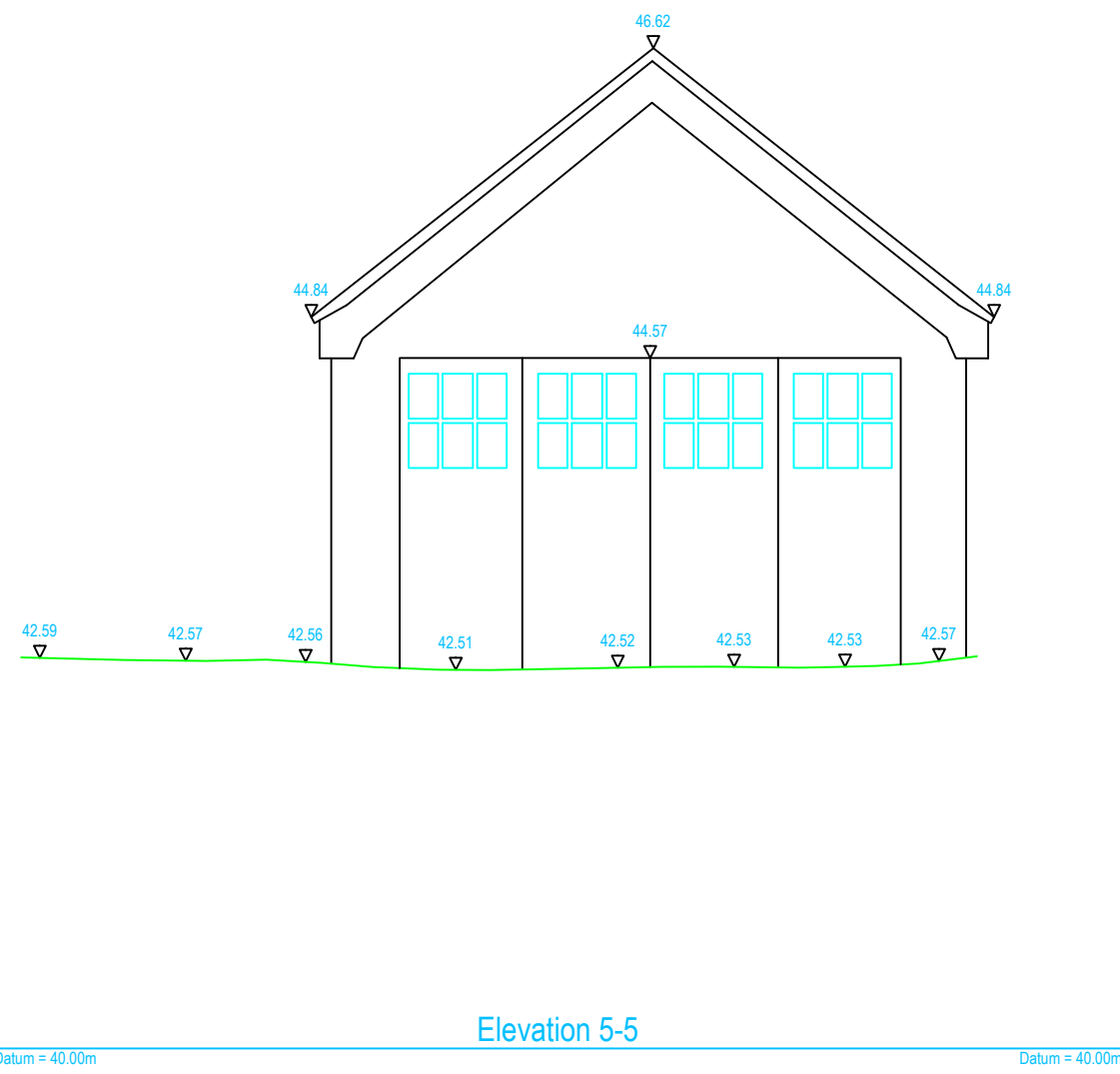


HL	Window Head Level
CL	Window Cill Level
dl	Head of Door Level
+52.00m	Ceiling / Soffit Level
+50.00m	Floor Level

Project Description
25 Kings College Road Ruislip

Drawing Number
TG-21-1305-04 (Page 2 of 3)





Legend

BoB

BT

CATV

CB

CBF

CBP

CL

CLF

CPS

DC

DP

ER

FB

FH

FP

G

GV

IC

IRF

IL

KW

LP

MH

MKR

PRF

PS

FWF

RE

RN

RS

SY

0.3/4/8

ToB

TP

VP

WV

Bottom of Bank

British Telecom

Cable Television

Control Box

Closed Board Fence

Concrete Block Paving

Cover Level

Chain Link Fence

Concrete Paving Slabs

Drainage Channel

Down Pipe

Earth Rod

Flowerbed

Fire Hydrant

Flag Pole

Gully

Gas Valve

Inspection Cover

Iron Railing Fence

Invert Level

Kerb Weir

Lamp Post

Manhole

Marker Post

Post & Rail Fence

Pipe Size

Post and Wire Fence

Rodding Eye

Road Name

Road Sign

Stay Wire

Trunk(Dia)/Spread(Dia)/Height(Approx)

Top of Bank

Telegraph Pole

Vent Pipe

Water Valve

HL

CL

dl

+52.00m

+50.00m

Window Head Level

Window Cill Level

Head of Door Level

Ceiling / Soffit Level

Floor Level

Client

Wadhal
Unit 6, High Street House
83 Askew Road
London
W12 9AH

Project Description

25 Kings College Road
Ruislip

Elevations

Levelling

All levels and coordinates relate to Ordnance Survey Grid and Datum.

Scale

1:100 @ A1

Date of Survey

October 2021

Drawing Number

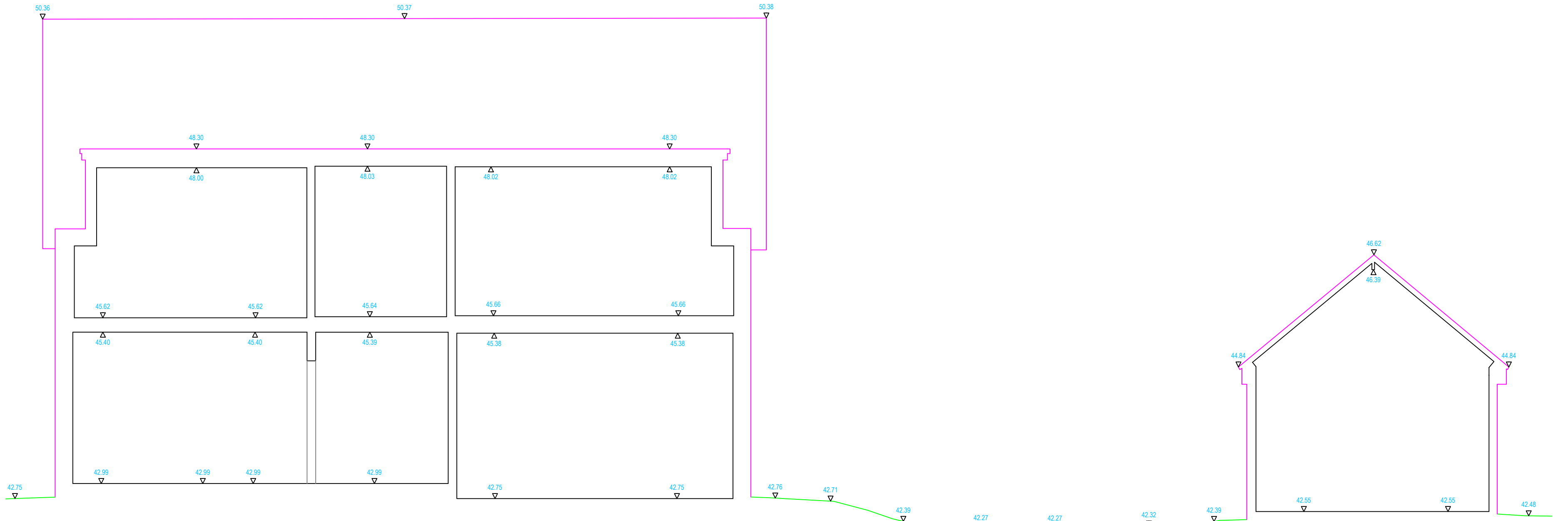
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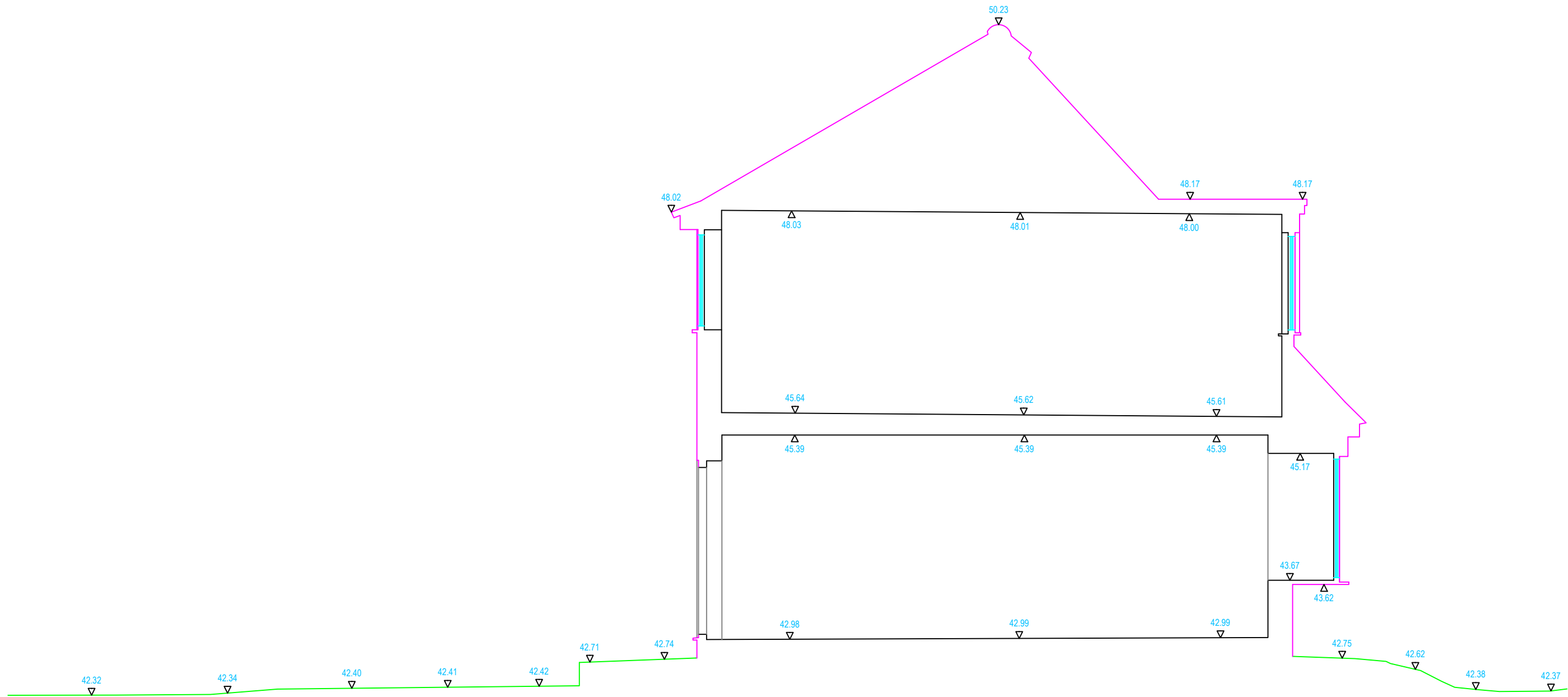
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Datum = 40.00m



Section B-B

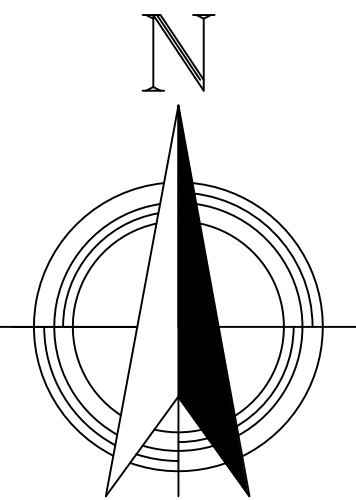
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Datum = 40.00m

Legend

- BoB Bottom of Bank
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- CB Control Box
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- 0.3/4/8 Trunk(Dia)/Spread(Dia)/Height(Approx)
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- VP Vent Pipe
- WV Water Valve

- HL Window Head Level
- CL Window Cill Level
- dl Head of Door Level
- +52.00m Ceiling / Soffit Level
- +50.00m Floor Level

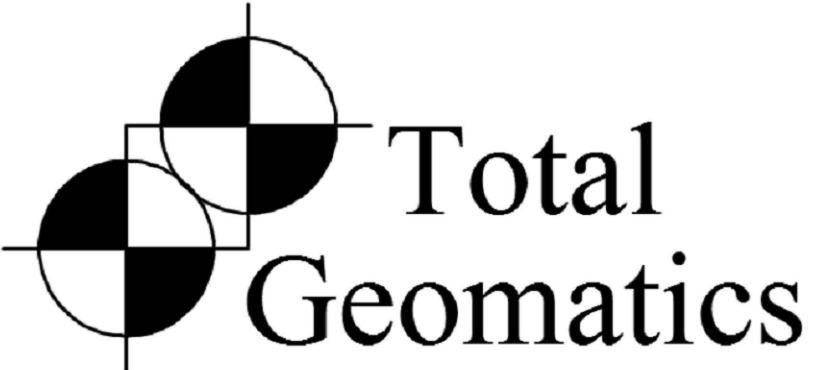


Client
Wadhal
Unit 6, High Street House
83 Askew Road
London
W12 9AH

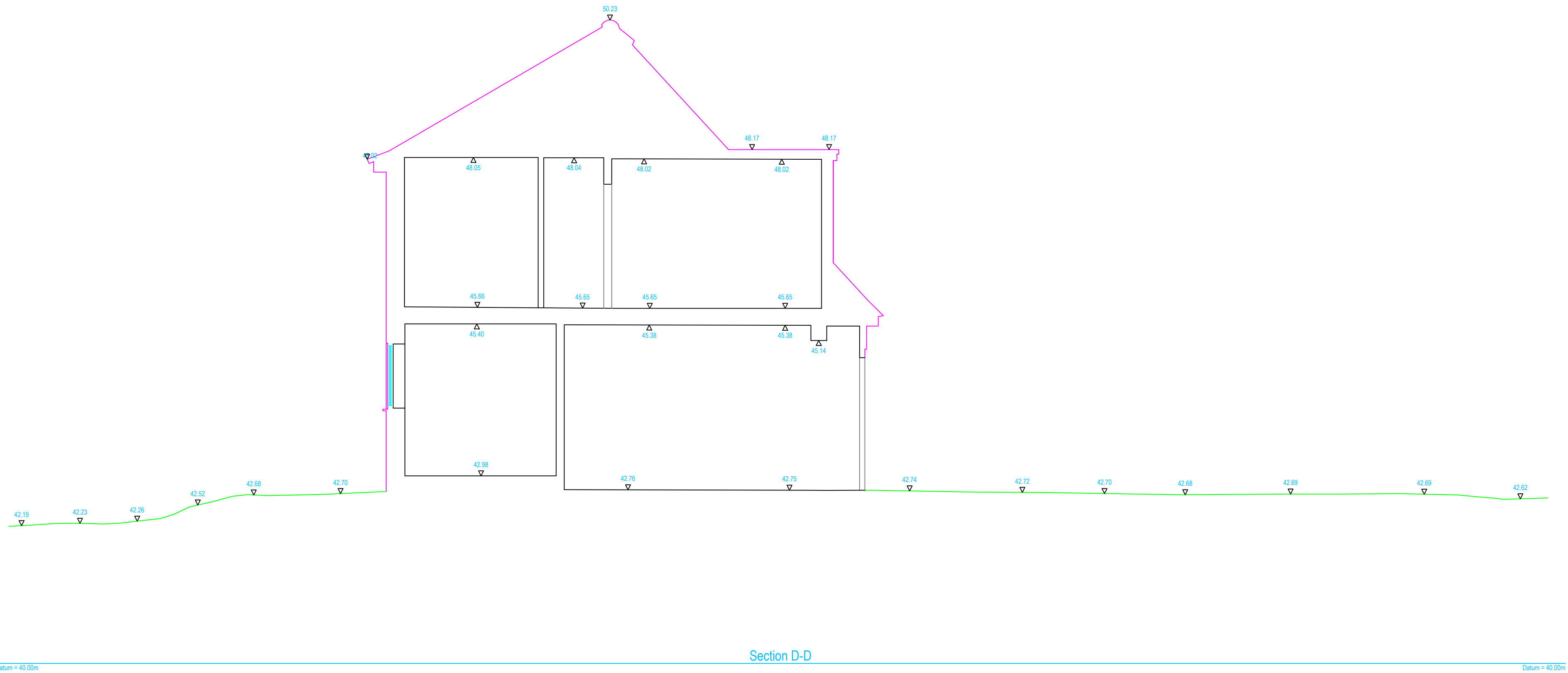
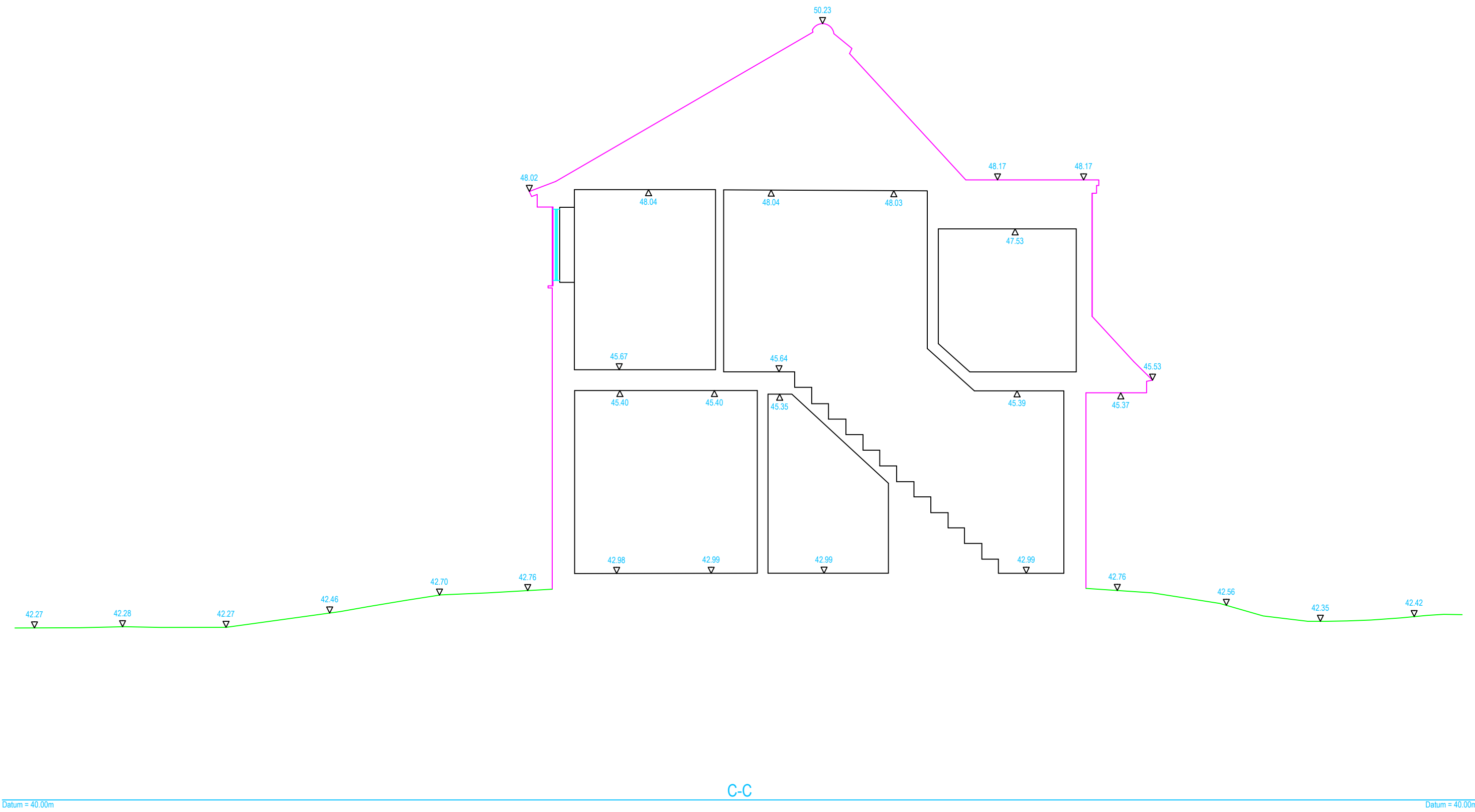
Project Description
25 Kings College Road
Ruislip

Sections
Levelling
All levels and coordinates relate to Ordnance
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Scale
1:100 @ A1
Date of Survey
October 2021

Drawing Number
TG-21-1305-05 (Page 1 of 2) TB



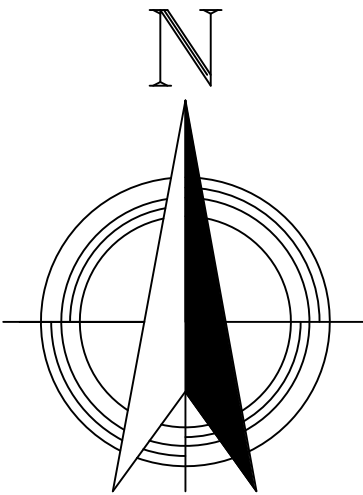
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Legend

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- +50.00m Floor Level



Client

Wadhal
Unit 6, High Street House
83 Askew Road
London
W12 9AH

Project Description

25 Kings College Road
Ruislip

Sections

Levelling	Scale
All levels and coordinates relate to Ordnance Survey Grid and Datum.	1:100 @ A1
	Date of Survey
	October 2021

Drawing Number

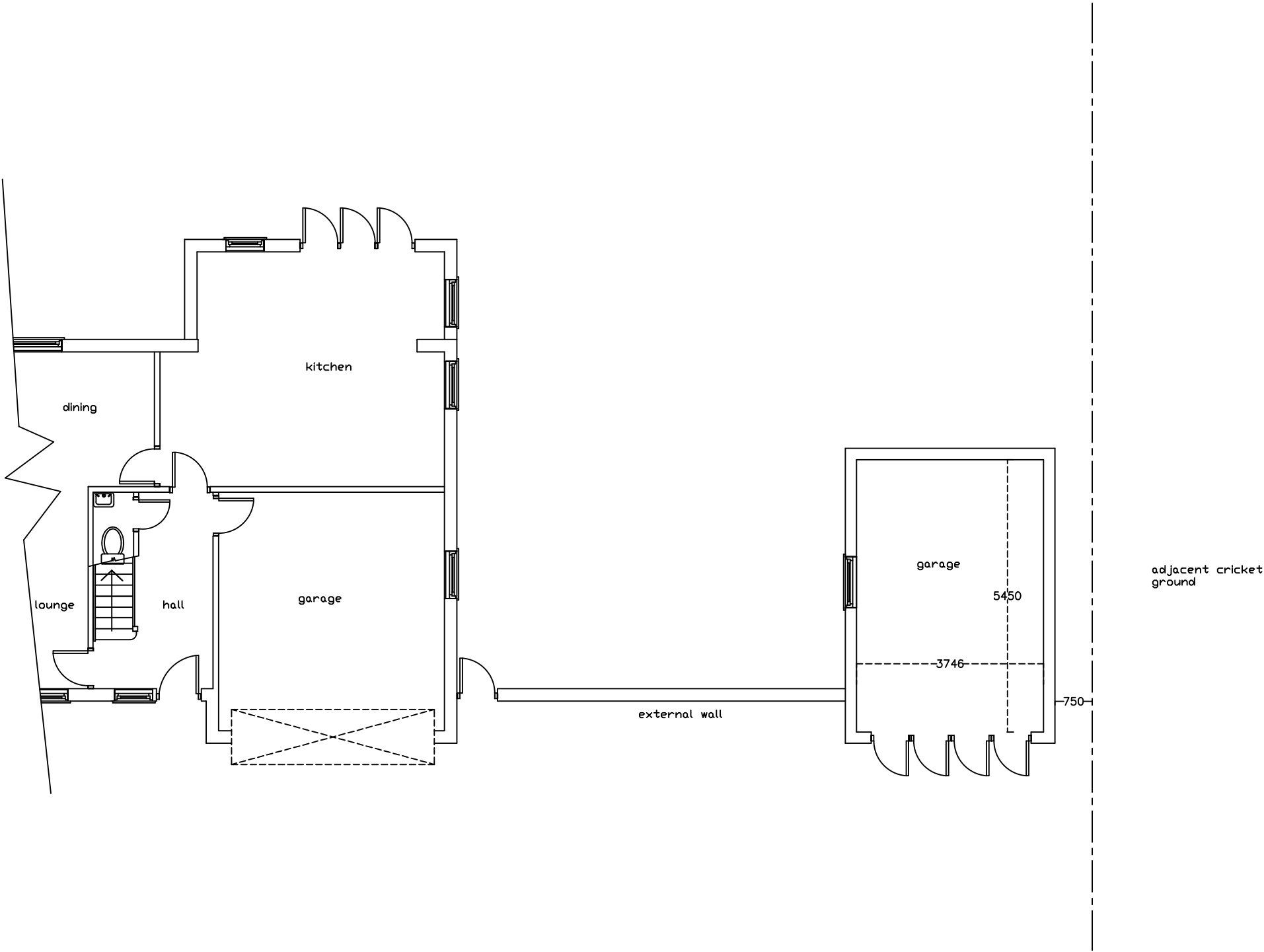
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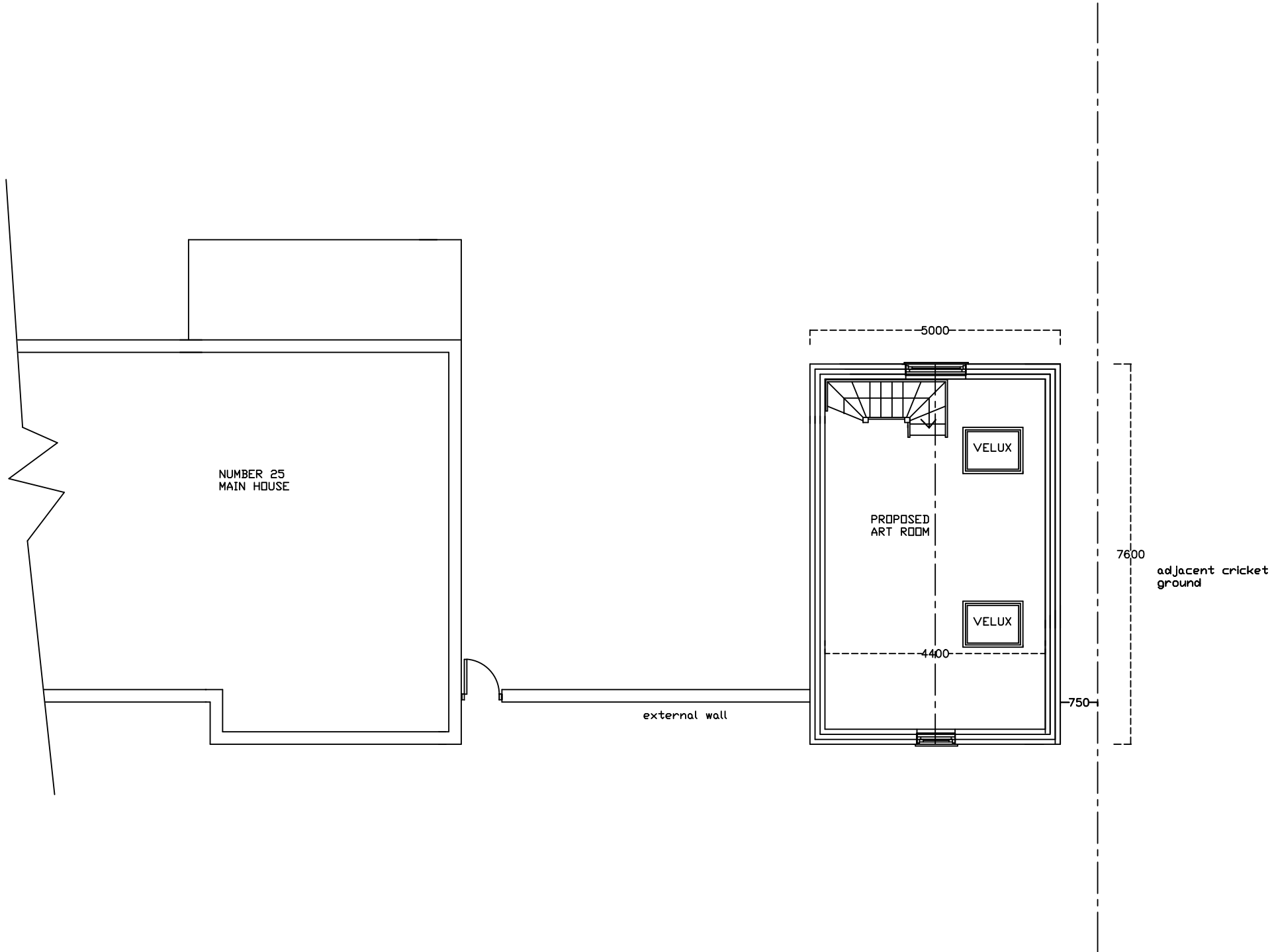
A3 PAPER

Existing Ground
Floor Plan

JAC Associates
Property Consultants
Mob: 07779 653101
jac.consultants@ntlworld.com

Project	
25 Kings College Road Ruislip MIDDX	
Client	
Mr Tel:	
Drawing Title	
Proposed Garage Conversion	
Drawing Number	
kingscollegerd-25 / 0 existing ground	
Scale	Date
1 : 100	28-04-26

All dimensions and information contained in these plans should be checked on site and with the Local Authority prior to commencing any building works. The works may also be covered by the Town and Country Planning Acts, Building Acts and The Party Wall Act. No works should be commenced prior to obtaining all necessary consents.



A3 PAPER

Proposed First
Floor Plan

JAC Associates
Property Consultants

Mob: 07779 653101
jac.consultants@ntlworld.com

Project

25 Kings College Road
Ruislip
MIDDXX

Client

Mr
Tel:

Drawing Title

Proposed Garage
Conversion

Drawing Number

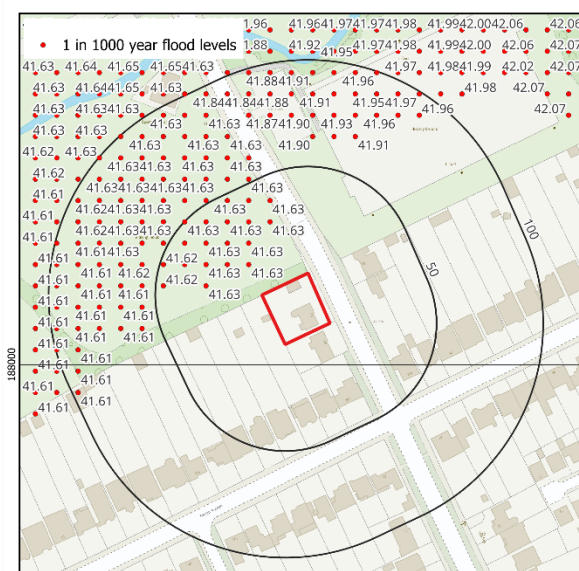
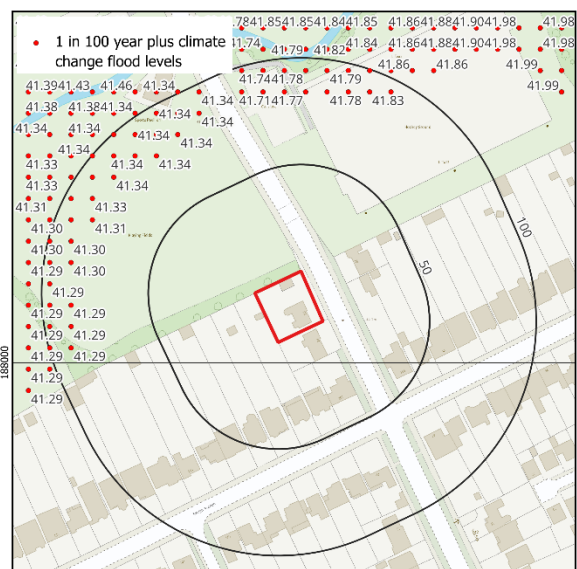
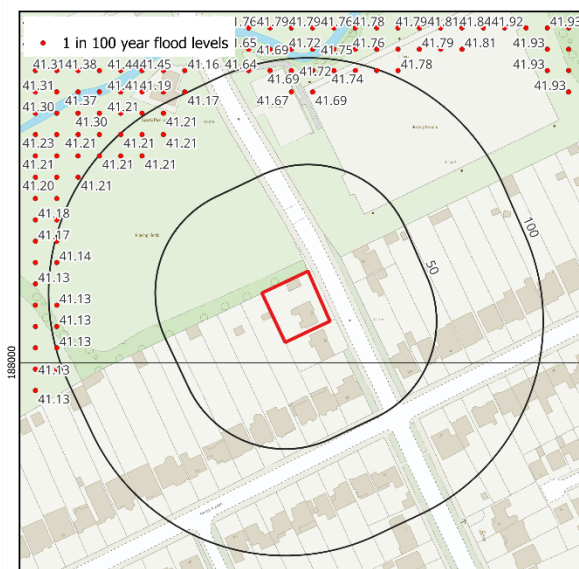
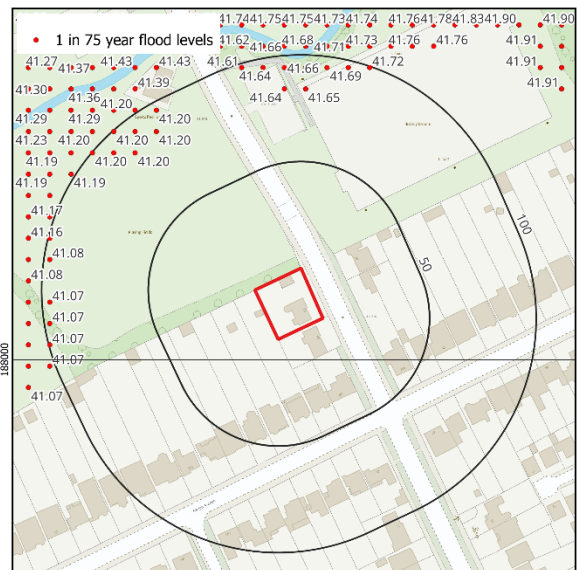
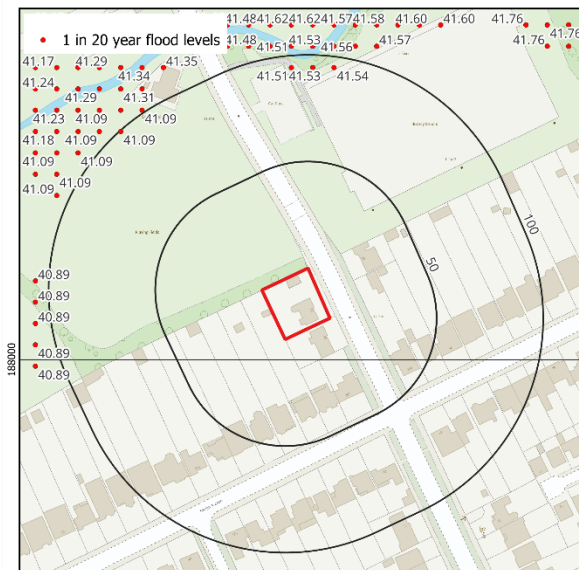
kingscollegerd-25 / 2 REV B
proposed first floor

Scale	Date
1 : 100	28-04-26

All dimensions and information contained in these plans should be checked on site and with the Local Authority prior to commencing any building works. The works may also be covered by the Town and Country Planning Acts, Building Acts and The Party Wall Act. No works should be commenced prior to obtaining all necessary consents.

Appendix B

Environment Agency data



Disclaimer

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Email: info@geosmartinfo.co.uk

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- sets out minimum standards which firms compiling and selling search reports have to meet.
- promotes the best practice and quality standards within the industry for the benefit of consumers and property professionals.
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Firms which subscribe to the Search Code will:

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- conduct business in an honest, fair and professional manner.
- handle complaints speedily and fairly.
- ensure that products and services comply with industry registration rules and standards and relevant laws.
- monitor their compliance with the Code.

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If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award up to £5,000 to you if the Ombudsman finds that you have suffered actual financial loss and/or aggravation, distress or inconvenience as a result of your search provider failing to keep to the Code.

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The Property Ombudsman scheme

Milford House

43-55 Milford Street

Salisbury

Wiltshire SP1 2BP

Tel: 01722 333306

Fax: 01722 332296

Email: admin@tpos.co.uk

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- Acknowledge it within 5 working days of receipt.
- Normally deal with it fully and provide a final response, in writing, within 20 working days of receipt.
- Keep you informed by letter, telephone or e-mail, as you prefer, if we need more time.
- Provide a final response, in writing, at the latest within 40 working days of receipt.
- Liaise, at your request, with anyone acting formally on your behalf.

If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs): Tel: 01722 333306, E-mail: admin@tpos.co.uk.

We will co-operate fully with the Ombudsman during an investigation and comply with his final decision. Complaints should be sent to:

Liz Lloyd

Finance Manager

GeoSmart Information Limited

Suite 9-11, 1st Floor,

Old Bank Buildings,

Bellstone, Shrewsbury, SY1 1HU

Tel: 01743 298 100

support@geosmartinfo.co.uk

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<http://geosmartinfo.co.uk/knowledge-hub/cdm-2015/>

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<http://geosmartinfo.co.uk/data-limitations/>