

**Cosy Haus A**8 Herbert Road,
Wimbledon, SW19 3SH**64 Boileau Road,
London, SW13 9BL, UK**

FLOOD RISK STATEMENT

1. INTRODUCTION

This flood risk statement has been prepared as a validation requirement for erection of a part single, part two storey rear/side extensions and porch addition with alterations to existing roof to create a habitable second floor with a rear dormer, roof light additions and alterations to existing fenestrations at 64 Boileau Road, London, SW13 9BL. This document has been prepared by Cosy Haus A to support the proposed planning application and demonstrate that even though the proposed development does warrant a site-specific detailed flood risk assessment, it is unlikely to have any impact in terms of flooding.

2. PROJECT DESCRIPTION

The proposed site consists of a two-storey detached dwelling with a recently approved part single, part two storey rear/side extensions and porch addition, with alterations to existing roof to create a habitable second floor with a rear dormer, roof light additions and alterations to existing fenestrations (ref: 24/1306/HOT). The site is currently 4nos x1 bedroom, 1-person self-contained flats with the ground floor housing two (2) combined bedroom and living areas, one (1) bedroom, two (2) kitchens, two (2) bathrooms and a store which can only be accessed from the external. The first floor, on the other hand, currently has two (2) combined bedroom and living areas, two (2) kitchens, two (2) bathrooms and a powder room. Prior to the property's conversion to a single dwelling, both floors are comprised of two (2) self-contained flats each, hence the existing internal layout. The dwelling is accessed by a front entry door at ground floor level from Boileau Road with side access to the rear garden of the property.

The proposed scheme aims to enlarge the previously approved layout of the living area and the bedrooms at the ground floor, first floor and second floor loft level through the extensions at ground floor rear, on the side of the property and on the rear roof dormer. Thus, making the property a 5-bedroom single family dwelling. Each bedroom will have their own ensembles. Appropriate bins and cycle storages have also been allocated to further support this application.

3. CATEGORY OF DEVELOPMENT

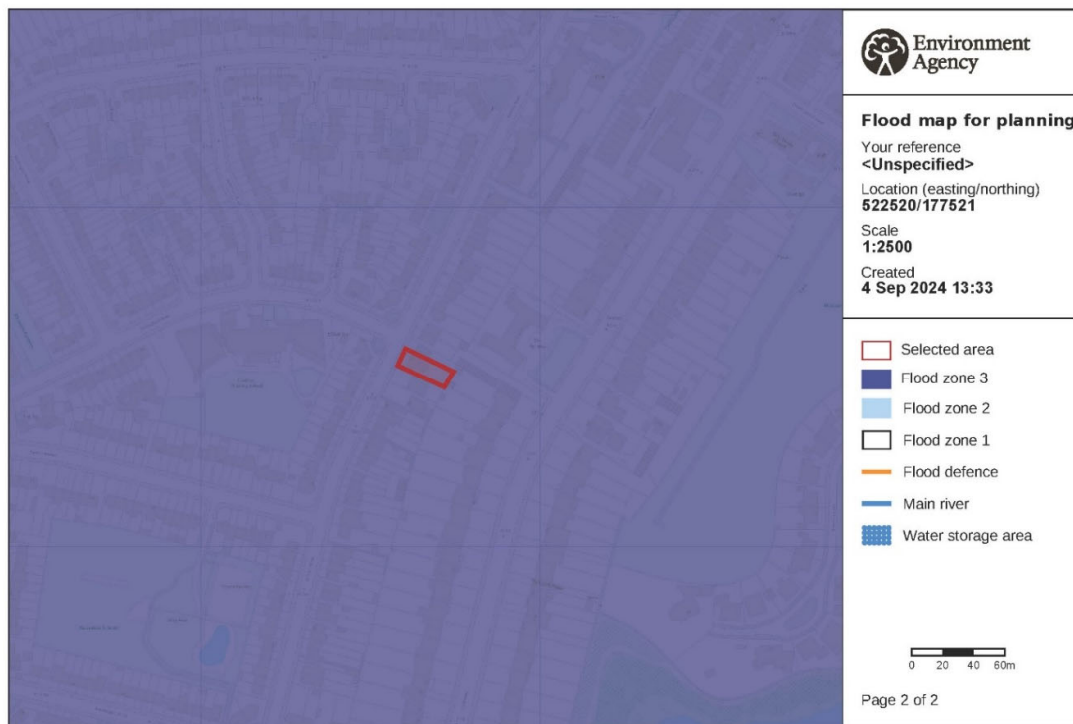
The site is situated within a residential area and therefore there will be no change of use. The previously approved scheme (ref:24/1306/HOT) does not exceed the floor area of 1,000m² including the proposed scheme under this application and therefore is not considered as a Major Development under Annex 6 of the London Plan 2021.

4. SITE

With reference to the Environment Agency Flood Map, the application site is situated within flood risk zones 2, 3 & 3a, as well as an area susceptible to surface water flooding.

To meet the criteria of LP21, a Flood Risk Assessment (FRA) has been provided for the previously granted application (24/1306/HOT) where it outlines the flood risk management measures. It was then supported by a delegated report from the case officer confirming that:

- The proposed development fits within EA standing advice for domestic extensions.
- No additional residential units will be created as part of the development.
- The additional footprint created by the development will not exceed 250m² (including the proposed extensions)
- Finished floor levels will be set no lower than existing floor levels.
- Internal access will be maintained from ground floor to the upper floors of the property.
- Flood proofing of the development will be incorporated as appropriate.
- A flood warning and evacuation plan will be implemented post development.
- The applicant will register with the free Environment Agency Flood Line Alert Direct service.
- Due to the small scale of development, a full Surface Water Drainage Strategy is not required at this stage of planning for the main house as there are no proposed external alterations. However, SuDS features will be incorporated into the development where practically possible or will utilise the existing arrangement on site.



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Figure 1 Flood map from Environmental Agency

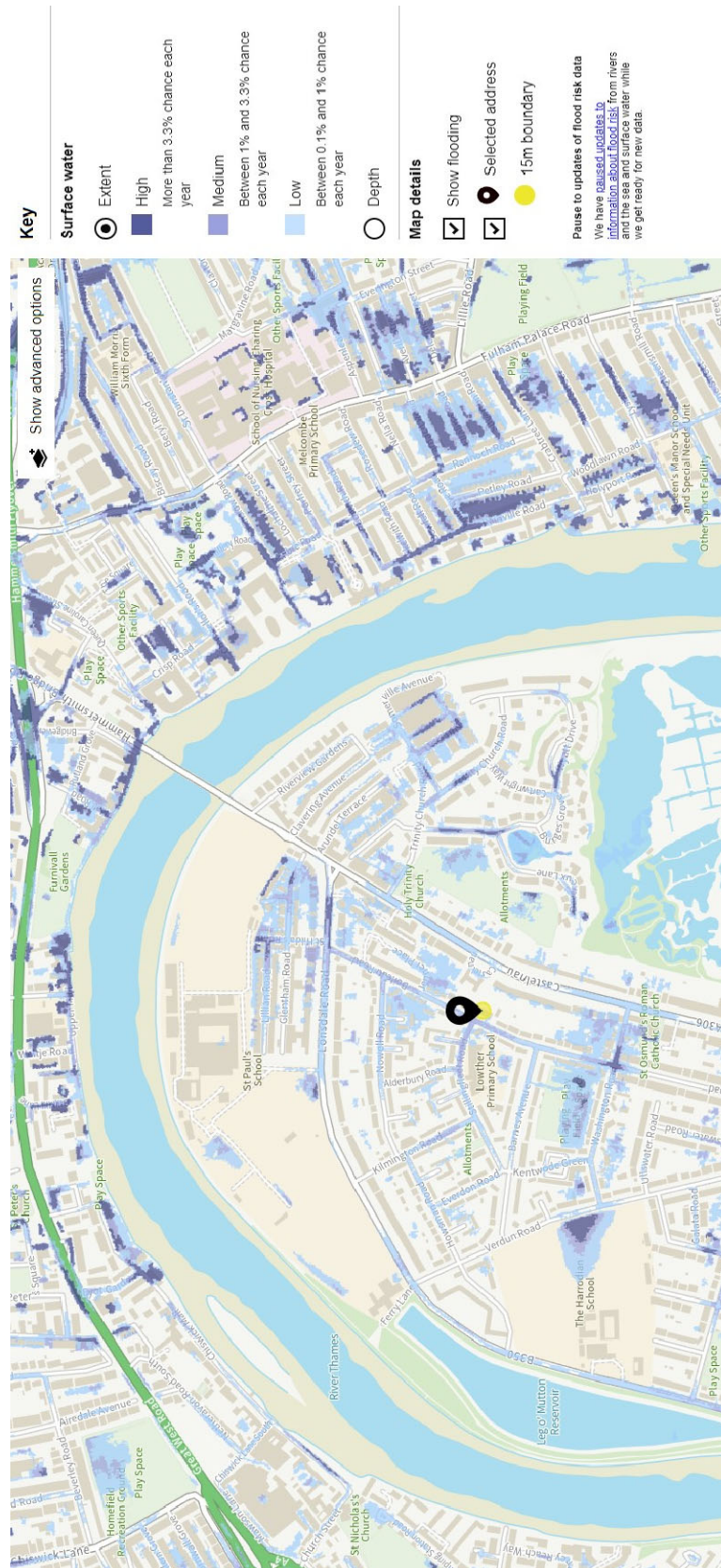


Figure 2 Flood map showing surface water flooding

5. CONCLUSION

The scale, bulk, massing, and design have already been established and permitted in a previous planning application (ref: 24/1306/HOT). In line with the granted application, this scheme only proposes minor extensions to the living spaces and bedrooms on the ground, first, and second levels, which are therefore regarded insignificant.

The proposed application is only classified as a minor development and would only involve minor extensions less than 250 m² and no proposed change of use. Therefore, it is not to be subjected to any sequential or exception tests.

The site is located in Flood Zone 3 according to the Environment Agency Flood Map for Planning (Rivers and Sea), which requires a flood risk assessment report to be submitted as part of the validation procedures and compliance; In line with this, a flood risk assessment report for the previously approved application (24/1306/HOT) is attached to support this application. All flood risks measures were outlined in the report, and had already been evaluated by the case officer to which he has deemed acceptable to the context of proposed development. Therefore, we assume that the flood risk management measures still apply as it demonstrates that the proposed application is found to be suitable in flood risk terms.

6. REFERENCE AS ATTACHED

- Flood Risk Assessment Report by Unda Consulting Limited for 64 Boileau Road for the previous application with ref no: 24/1306/HOT



Flood Risk Assessment for Planning

Prepared for:

Yoho Living Ltd

October 2023

Our reference:

93439-Zang-BoileauRd

Location:

64 Boileau Road

Barnes

London

SW13 9BL



Document Issue Record

Project: Flood Risk Assessment for Planning

Client: Yoho Living Ltd

Application: Part single, part two storey rear/side extensions and porch addition, alterations to existing roof to create habitable second floor with rear dormer, roof light additions and alterations to existing fenestrations (to remain a single dwelling)

Location: 64 Boileau Road, Barnes, London, SW13 9BL

Our reference: 93439-Zang-BoileauRd

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1. Key Facts

1.1 Flood Risk Posed:

- Site located within EA Flood Zone 3 (High Risk).
- The risk would appear to be tidal, originating from the River Thames located approximately 640m north of the site at the nearest point.
- In-channel modelled flood levels for use within this report have been requested from the EA. The data is from the Thames Estuary 2100 (TE2100) study completed by HR Wallingford in 2008.
- Node 2.19 is the closest in-channel node to the site, and therefore the most relevant for use. Comparison with topographic site levels (4.48m AOD to 4.72m AOD) shows that the site is below the present day modelled flood level, and below the future modelled extreme flood levels. However, the site is defended from direct inundation during an extreme event by the Thames Barrier and raised defences either side of the channel.
- The design standard of protection of the flood defences for the Thames within proximity of the site is 0.1% AEP; they are designed to defend London up to a 1 in 1000 year tidal flood event. The defences are all raised, man-made and privately owned.
- The site is shown to be outside of the modelled breach extent for the present day, but entirely within the extent for 2100.
- According to EA records, there are no records of historical flooding at the site or surrounding areas.
- The EA Risk of Flooding from Surface Water Map suggests that the site lies in an area of "Medium" to "Very low" risk from surface water.
- The London Borough of Richmond Upon Thames Strategic Flood Risk Assessment shows the site to be located within an area of 75% or more susceptibility to groundwater flooding. No records of groundwater flooding at the site previously have been provided.
- No information has been provided to suggest that the site is susceptible to sewer surcharge flooding.

1.2 Flood Risk Mitigation:

- The proposed development fits within EA standing advice for domestic extensions.
- No additional residential units will be created as part of the development.
- The additional footprint created by the development will not exceed 250m².
- Finished floor levels will be set no lower than existing floor levels.
- Internal access will be maintained from ground floor to the upper floors of the property.

- Flood proofing of the development will be incorporated as appropriate.
- A flood warning and evacuation plan will be implemented post development.
- The applicant will register with the free Environment Agency Floodline Alert Direct service.
- Due to the small scale of development, a full Surface Water Drainage Strategy is not required at this stage of planning for the main house as there are no proposed external alterations. However, SuDS features will be incorporated into the development where practically possible or will utilise the existing arrangement on site.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

2. Introduction

Unda Consulting Limited have been appointed by Yoho Living Ltd (hereinafter referred to as “the applicant”) to undertake a Flood Risk Assessment for the proposed development at 64 Boileau Road, Barnes, London, SW13 9BL (hereinafter referred to as “the site”). The FRA has been undertaken in accordance with the National Planning Policy Framework (NPPF) and the associated technical guidance.

The site appears to be located within Flood Zone 3, as defined by the Environment Agency (EA) on their Flood Map for Planning. Under the National Planning Policy Framework (NPPF), a FRA is required if a proposed development:

- includes building or engineering works in Flood Zone 2 or 3;
- includes building or engineering works on land classified by the Environment Agency as having critical drainage problem;
- changes the use of land or buildings in a location at risk of flooding from rivers or the sea, or with critical drainage problems;
- changes the use of land or buildings in a way that increases the flood vulnerability of the development where it may be subject to other sources of flooding;
- is larger than 1 hectare.

The assessment should demonstrate to the Local Planning Authority (LPA) and EA how flood risk will be managed now and over the development’s lifetime, taking climate change into account, and with regard to the vulnerability of its potential users.

- whether the proposed development is likely to be affected by current or future flooding from any source;
- whether it will increase flood risk elsewhere;
- whether the measures proposed to deal with these effects and risks are appropriate.

3. Existing Situation

3.1 Site Usage:

The site is currently occupied by a detached residential dwelling.

Aerial imagery of the site and surrounding area is presented below in Figure 1, and the site location is shown in Figure 2.



Figure 1: Aerial photograph of site and surrounding area (Source: Google Earth)



Figure 2: Site location Plan (Source: Planning Portal)

3.2 Topography:

Environment Agency LiDAR has been used to assess the topography across the site and wider area. Light Detection and Ranging (LIDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground surface. Up to 100,000 measurements per second are made of the ground, allowing highly detailed terrain models to be generated at high spatial resolutions. The EA's LIDAR data archive contains digital elevation data derived from surveys carried out by the EA's specialist remote sensing team. Accurate elevation data is available for over 70% of England. The LiDAR technique records an elevation accurate to +0.15m every 1m. This dataset is derived from a combination of our full dataset which has been merged and re-sampled to give the best possible coverage. The dataset can be supplied as a Digital Surface Model (DSM) produced from the signal returned to the LIDAR (which includes heights of objects, such as vehicles, buildings and vegetation, as well as the terrain surface) or as a Digital

Terrain Model (DTM) produced by removing objects from the Digital Surface Model. 1.0m horizontal resolution DTM LiDAR data has been used for the purposes of this study.

LiDAR remotely sensed digital elevation data suggests that the ground topography on the site ranges between approximately 4.48m AOD to 4.72m AOD.

3.3 Geology and Soil:

The British Geological Survey (BGS) Map indicates that the bedrock underlying the site is London Clay Formation – Clay and Silt, with superficial deposits of Kempton Park Gravel Member – Sand and Gravel.

The soil type taken from the UK Soil Observatory website shows relatively deep soils River Terrace Sand/Gravel soil parent materials, with a Sand to Sandy Loam soil texture.

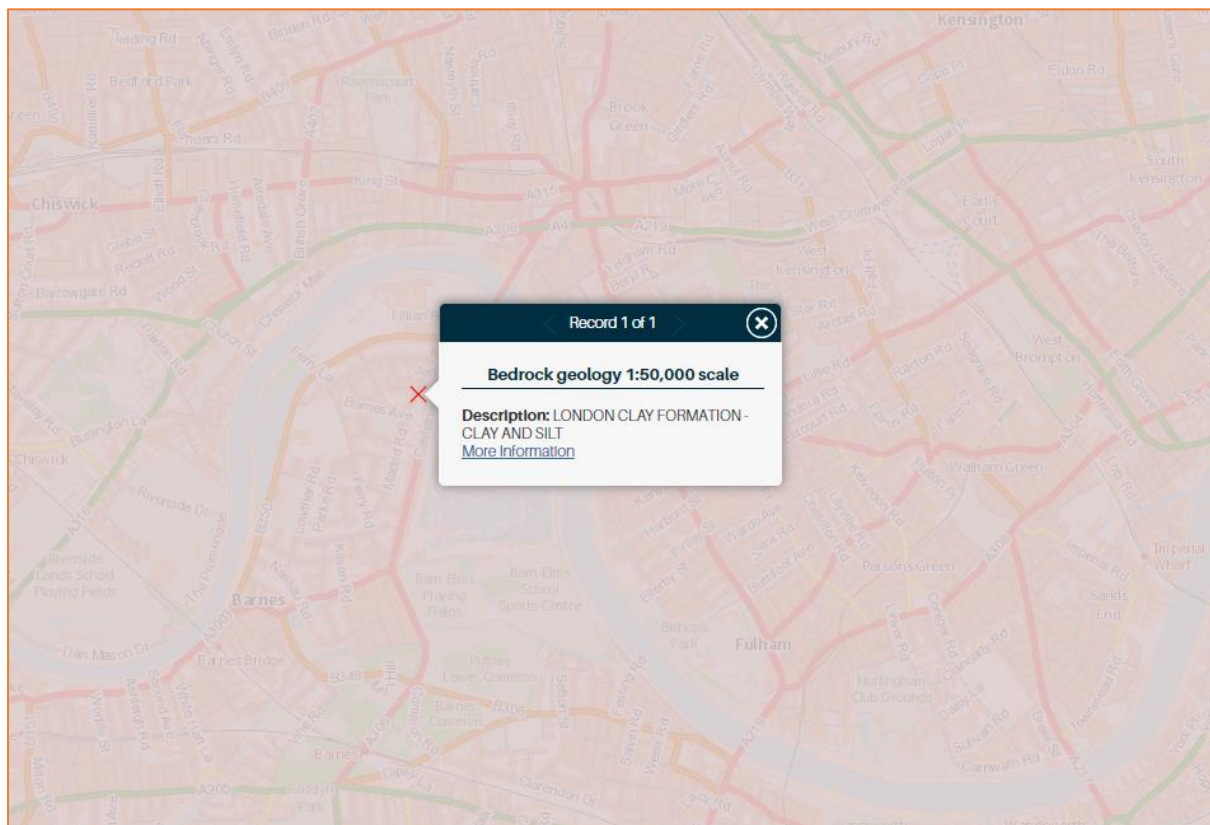


Figure 3: Local bedrock geology (Source: BGS)

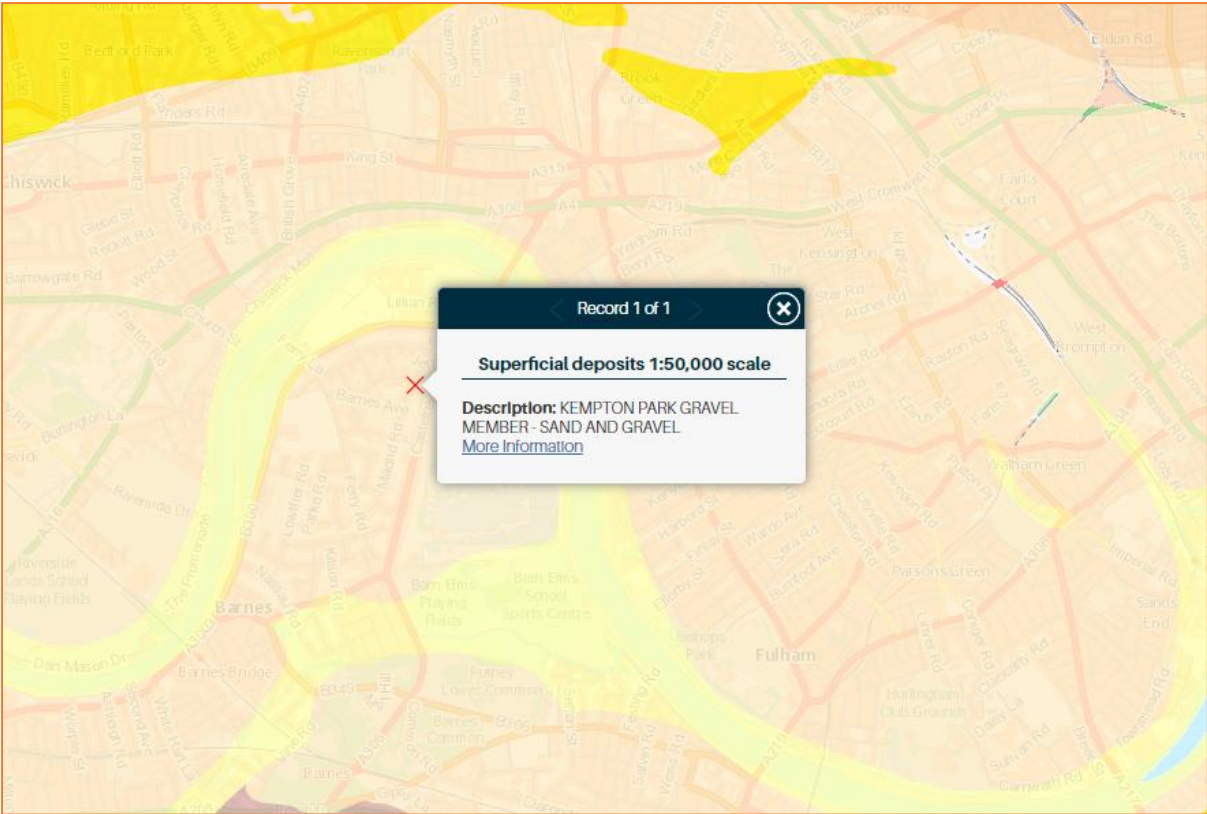


Figure 4: Local superficial deposits (Source: BGS)

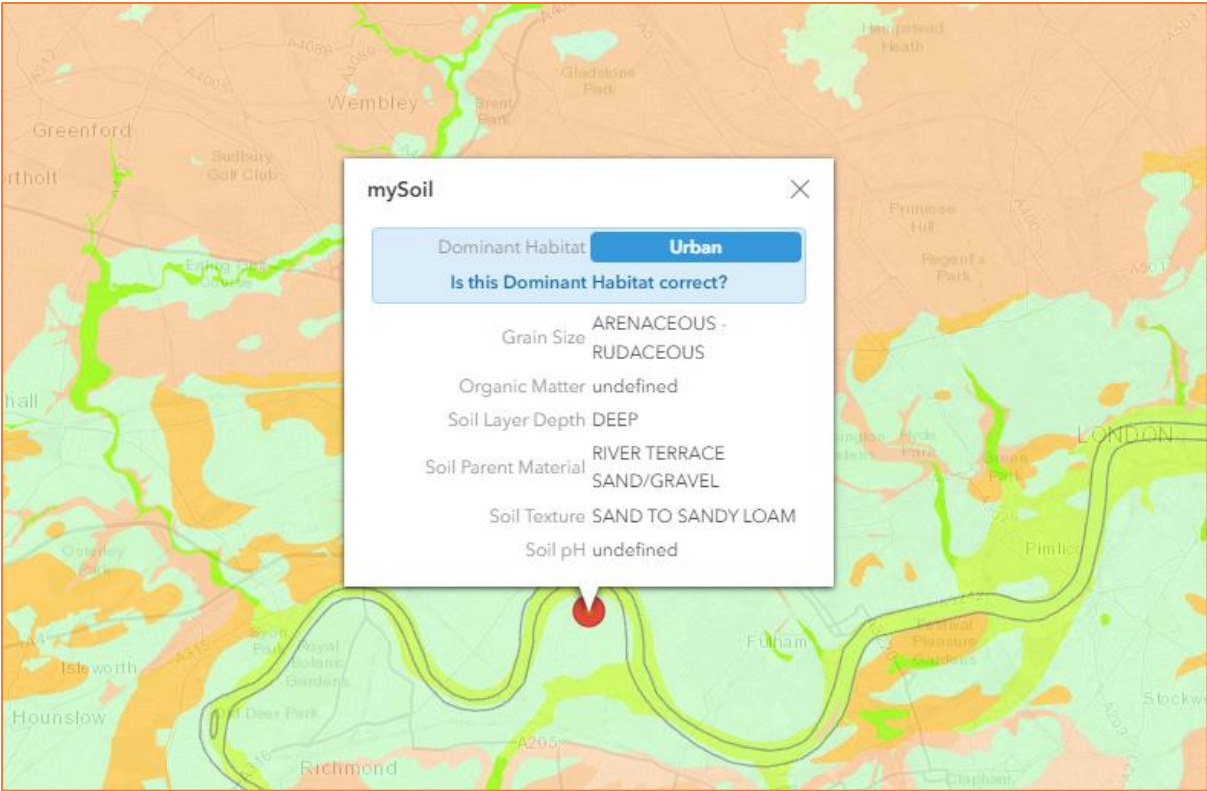


Figure 5: Local soil types (Source: UKSO)

4. Development Proposal

The proposed application is for part single, part two storey rear/side extensions and porch addition. Alterations to existing roof to create a habitable second floor with a rear dormer, roof light additions and alterations to existing fenestrations (to remain a single dwelling).

At this stage, there is no proposed basement as part of the development.

Proposed plans can be found below and in the report Appendix.

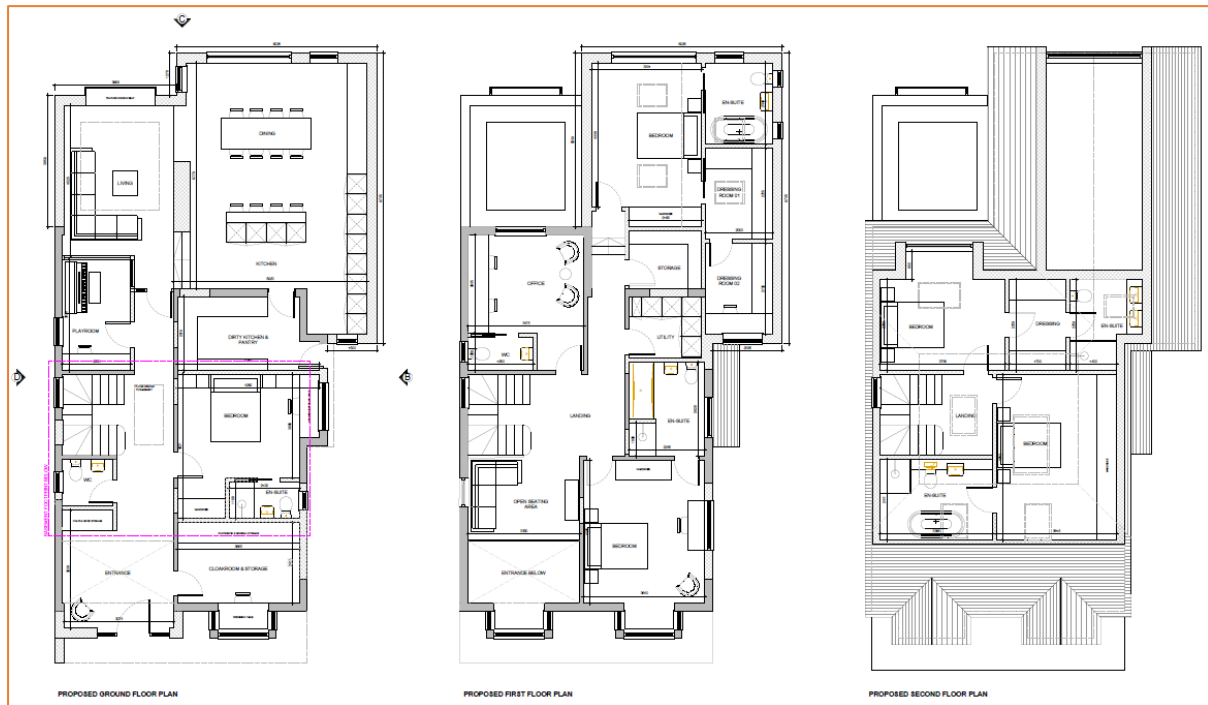


Figure 6: Proposed ground floor, first floor and roof plan layout (Source: Uskuri Theobald Architects)

5. Assessment of Flood Risk

5.1 Flood Zones:

Within planning, Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. They are shown on the Environment Agency's Flood Map for Planning (Rivers and Sea), available on the Environment Agency's website.

| Flood Zone | Definition |
|---|---|
| Zone 1 Low Probability | Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3) |
| Zone 2 Medium Probability | Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map) |
| Zone 3a High Probability | Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map) |
| Zone 3b The Functional Floodplain | This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map) |

Table 1: Flood Zones

The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding.

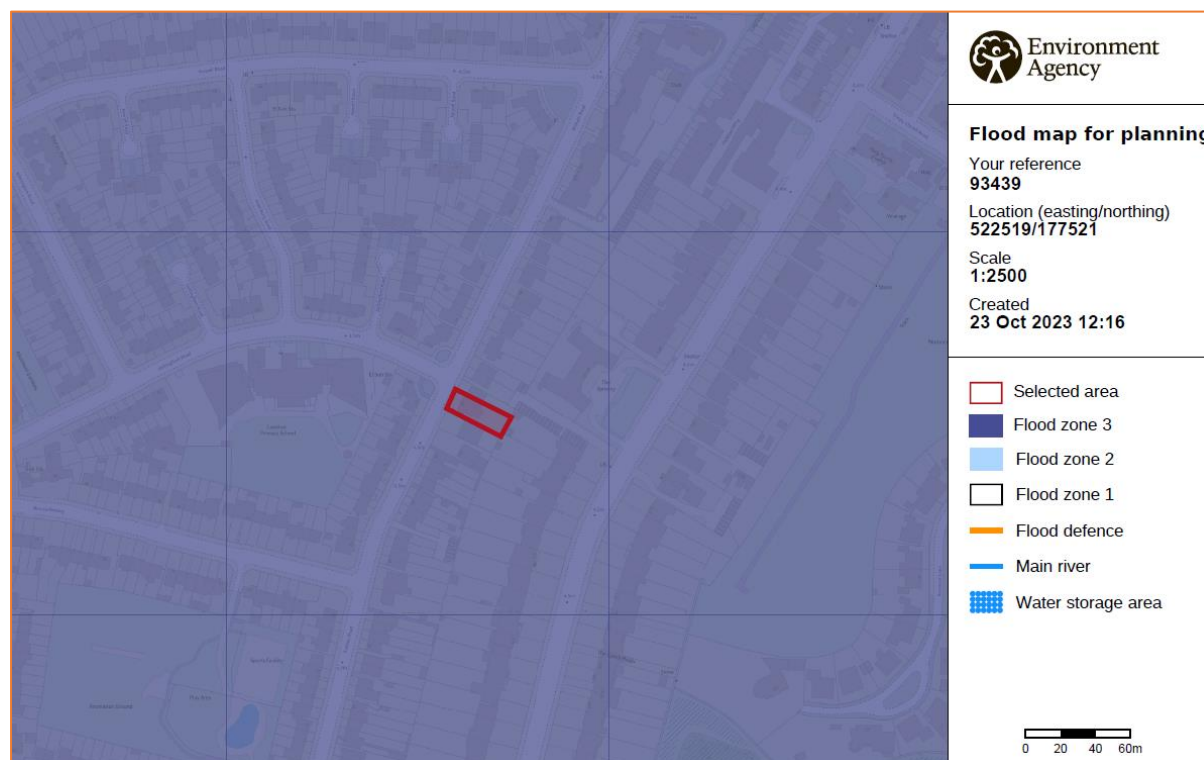


Figure 9: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

The site is located within Flood Zone 3 (High Probability), which means it is defined as land having a 1 in 100 or greater annual probability of river flooding, or land having a 1 in 200 or greater annual probability of sea flooding.

The risk would appear to be tidal, originating from the River Thames located approximately 640m north of the site at the nearest point.

5.2 Fluvial (River Thames):

The River Thames is a river that flows through southern England, most notably through London. At 346 km, it is the longest river entirely in England and the second longest in the United Kingdom, after the River Severn. It also flows through Oxford (where it is called Isis), Reading, Henley-on-Thames and Windsor. The lower reaches of the river are called the Tideway, derived from its long tidal reach up to Teddington Lock. It rises at Thames Head in Gloucestershire, and flows into the North Sea via the Thames Estuary. The Thames drains the whole of Greater London.

The River Thames is predominantly tidal in the vicinity of the site.

5.2.1 Modelled flood levels and extents:

In-channel modelled flood levels for use within this report have been requested from the EA. The data is from the Thames Estuary 2100 (TE2100) study completed by HR Wallingford in 2008. The TE2100 plan is now live and within it are a set of levels on which the flood risk management strategy is based. The plan is the overarching flood management strategy for the Thames Estuary and therefore any development planning should be based on the same underlying data.

TE2100 takes into account operation of the Thames Barrier when considering future river levels. The Thames Barrier requires regular maintenance and with additional closures the opportunity for maintenance will be reduced. When this happens, river levels which would normally shut the barrier will have to be allowed through to ensure that the barrier is not shut too often. For this reason, levels upstream of the barrier will increase and the tidal walls will need to be heightened to match.

The levels upstream of the barrier are the highest levels permitted by the operation of the Thames Barrier. If levels and flows are forecast to be any higher, the Thames Barrier would shut, ensuring that the tide is blocked and the river maintained to a low level. For this reason, the probability of any given water level upstream of the Barrier is controlled and therefore any associated return period becomes irrelevant. The Thames Barrier and associated defence system has a 1 in 1000 year standard which means it ensures that flood risk is managed up to an event that has a 0.1% annual probability. The probability of water levels upriver is ultimately controlled by the staff at the Thames Barrier.

In west London there is a heavy influence from upstream flows (fluvial flows). The flood defences are built to manage tidal flood risk only. With very high fluvial flows, the river levels in west London could be above the 0.1% annual probability tidal level. The climate change levels are assessed to determine the future tidal defence levels. For this reason, they only account for extreme tidal events and not extreme fluvial flow events. The present-day levels include extreme flows from upstream (fluvial events) as well as extreme tidal events.

The following maximum extreme flood levels relevant to the site have been provided by the EA:

| Node / Event | Present day | 2100 |
|--------------|-------------|----------|
| 2.19 | 5.03mAOD | 5.93mAOD |

Table 2: TE2100 modelled in-channel flood levels

Node 2.19 is the closest in-channel node to the site, and therefore the most relevant for use. Comparison with topographic site levels (4.48m AOD to 4.72m AOD) shows that the site is below the present day modelled flood level, and below the future modelled extreme flood levels. However, the site is defended from direct inundation during an extreme event by the Thames Barrier and raised defences either side of the channel.

5.2.2 Flood Defences:

London is defended from tidal flooding from the River Thames to a high standard. These defences include the Thames Barrier. The Thames Barrier is one of the largest movable flood barriers in the world. The EA runs and maintains the Thames Barrier as well as London's other flood defences.

The Thames Barrier spans 520m across the River Thames near Woolwich, and it protects 125km² of central London from flooding caused by tidal surges. It has 10 steel gates that can be raised into position across the River Thames. When raised, the main gates stand 15m high, and 61.5m wide. Each main gate weighs 3,300 tonnes.

The barrier is closed under storm surge conditions to protect London from flooding from the sea. It may also be closed during periods of high flow over Teddington Weir to reduce the risk of river flooding in some areas of west London including Richmond and Twickenham.

The Thames Barrier will then remain closed over high water until the water level downstream of the Thames Barrier has reduced to the same level as upstream. This is a managed process to provide for different circumstances and takes approximately 5 hours. The Thames Barrier is then opened, allowing the water upstream to flow out to sea with the outward-bound tide.

The Thames Barrier has been closed 208 times since it became operational in 1982 (correct as of April 2023). Of these closures:

- 117 were to protect against tidal flooding
- 91 were to protect against combined tidal/fluvial flooding

In addition to the Thames Barrier, the site benefits from the presence of raised man-made flood defences either side of the main River Thames channel. These raised defences act to prevent direct inundation of the site and surrounding area during high tides and periods of high fluvial flow.

The design standard of protection of the flood defences for the Thames within proximity of the site is 0.1% AEP; they are designed to defend London up to a 1 in 1000 year tidal flood event. The defences are all raised, man-made and privately owned.

5.2.3 Residual risk (breach or overtopping of flood defences):

The flood defences in place act to defend the site from direct inundation, however a residual risk is posed to the site via inundation and failure of the flood defences in place. Mapping provided by the EA has shown the site to be within the potential inundation zone during a breach of flood defences.

The Thames Tidal Upriver Breach Inundation Modelling Study 2017 was completed by Atkins Ltd. in May 2017.

The EA have developed a modelling approach where all upriver breach locations along the Thames are equitably modelled, to ensure a consistent approach across London. This modelling simulates 5679 continuous tidal breaches along the entire extent of the Thames from Teddington to the Thames Barrier. For hard and composite defences breaches are set at 20m wide; for soft defences, breaches are 50m wide. In both cases, the defence breach scour distance was assumed to extend into the floodplain by the same distance as the breach width.

For breaches upriver of the Thames Barrier, there is no return period for modelled levels as the levels are controlled by barrier closures. The levels used are referred to as Maximum Likely Water Levels (MLWLs). Therefore 2005 and 2100 epochs were modelled on that basis.

The site is shown to be outside of the modelled breach extent for the present day, but entirely within the extent for 2100.



Figure 10: EA Thames Tidal 2065 and 2100 Maximum Breach Extent (dark and light purple respectively)
(Source: EA)

5.2.4 Historical flood events:

According to EA records, there are no records of historical flooding at the site or surrounding areas.

5.3 Pluvial (Surface Water):

Pluvial (surface water) flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead.

In 2013 the EA, working with Lead Local Flood Authorities (LLFAs), produced an updated Flood Map for Surface Water. It is considered to represent a significant improvement on the previous surface water flood maps available, both in terms of method and representation of the risk of flooding. The modelling techniques and data used are considerably improved, and also incorporated locally produced mapping where this is available to represent features best modelled at a local scale.

The Flood Map for Surface Water assesses flooding scenarios as a result of rainfall with the following chance of occurring in any given year (annual probability of flooding is shown in brackets):

- High: Greater than or equal to 3.3% (1 in 30) chance in any given year (3.3%)
- Medium: Less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) chance in any given year
- Low: Less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance in any given year
- Very Low: Less than 0.1% (1 in 1,000) chance in any given year

The mapping below shows the Risk of Flooding from Surface Water centred on the postcode. Please note that the EA do not consider this information suitable to be used to identify the risk to individual properties or sites. It is useful to raise awareness in areas which may be at risk and may require additional investigation.

The EA Risk of Flooding from Surface Water Map suggests that the site lies in an area of "Medium" to "Very low" risk from surface water.

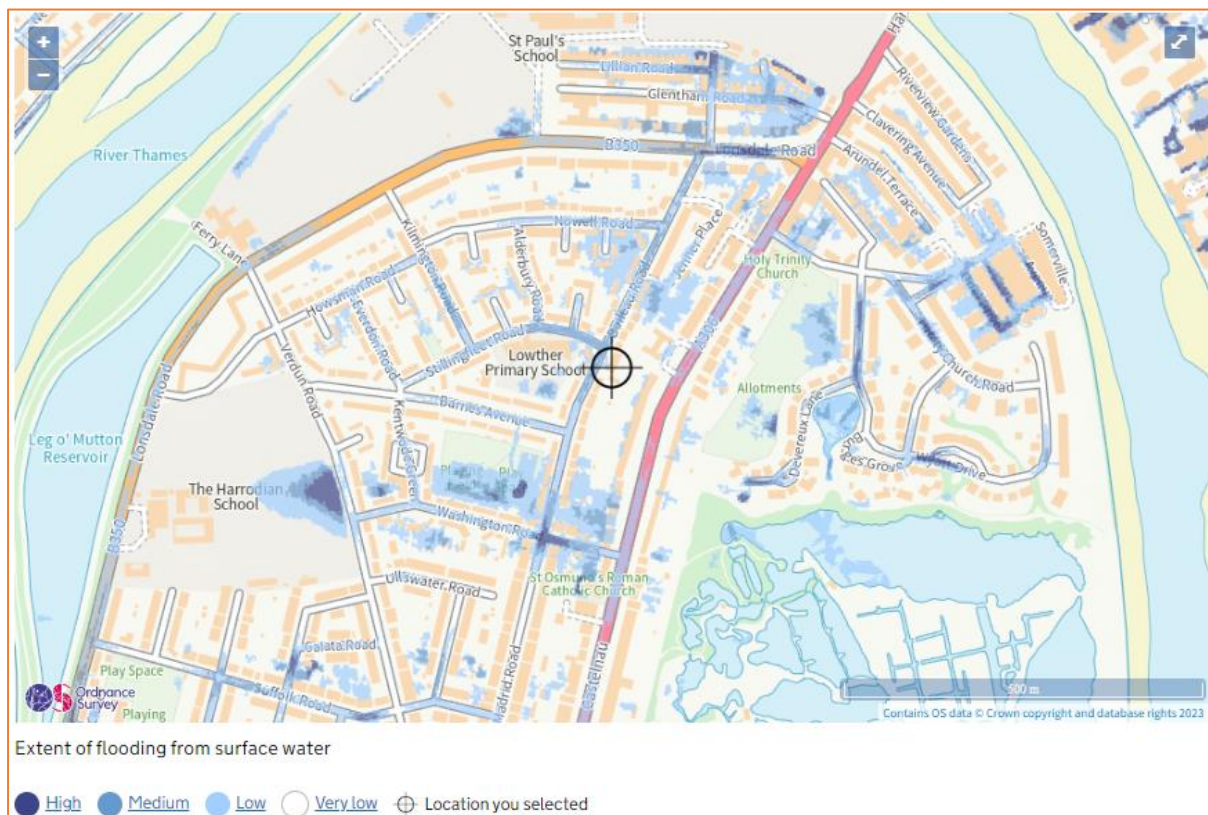


Figure 12: Extract from Environment Agency Surface Water Flood Map (Source: EA)

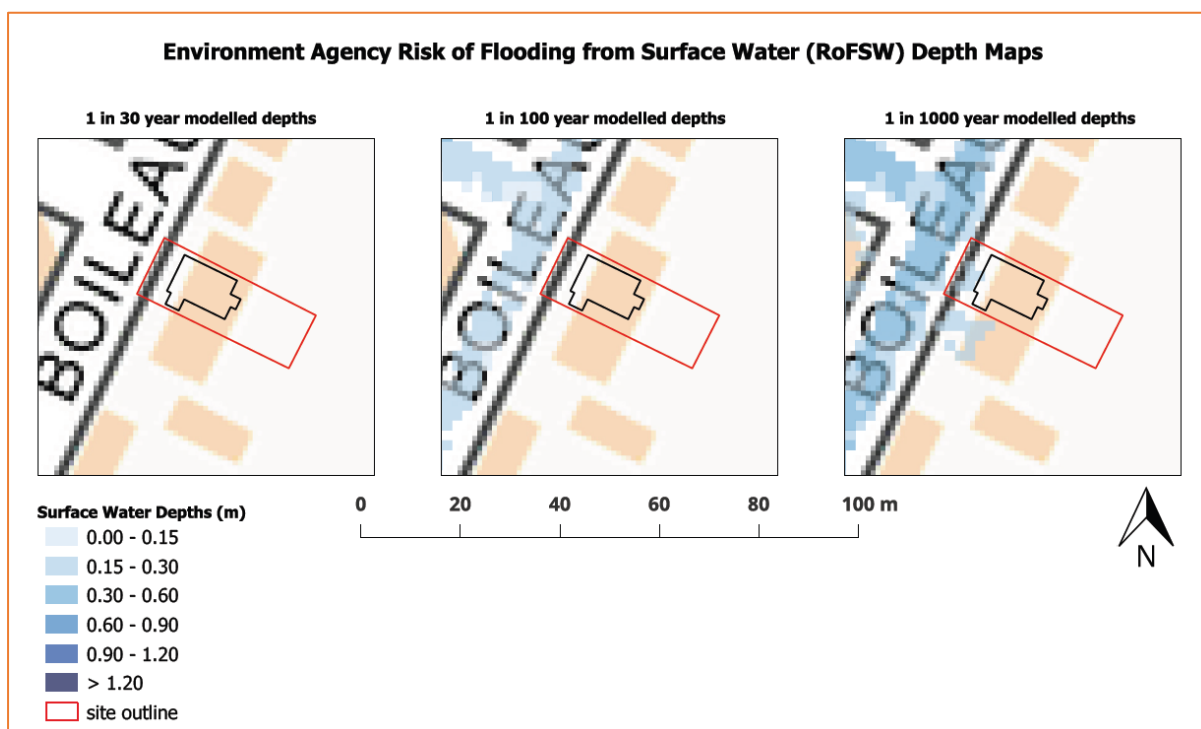


Figure 13. EA Risk of Flooding from Surface Water (RoFSW) depth maps (Source: EA)

The Environment Agency risk of flooding from surface water depth maps shows that for the 1:30 year event (high risk) and 1:100 year event (medium risk), there is no modelled surface water on site. For the 1:1000 year event (low risk), surface water is shown in the west of the site to the front of the property, with a maximum depth of 0.15-0.30m.

5.4 Groundwater:

Groundwater flooding occurs as a result of water rising up from the underlying rocks or from water flowing from abnormal springs. This tends to occur after much longer periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends to flow from areas where the ground level is high, to areas where the ground level is low. In low-lying areas, the water table is usually at shallower depths anyway, but during very wet periods, with all the additional groundwater flowing towards these areas, the water table can rise up to the surface causing groundwater flooding.

Groundwater flooding is most likely to occur in low-lying areas underlain by permeable rocks (aquifers). These may be extensive, regional aquifers, such as chalk or sandstone, or may be localised sands or river gravels in valley bottoms underlain by less permeable rocks. Groundwater flooding takes longer to dissipate because groundwater moves much more slowly than surface water and will take time to flow away underground.

The London Borough of Richmond Upon Thames Strategic Flood Risk Assessment shows the site to be located within an area of 75% or more susceptibility to groundwater flooding.

No records of groundwater flooding at the site previously have been provided.

5.5 Sewer Surcharge:

Sewer flooding occurs when the sewer network cannot cope with the volume of water that is entering it. It is often experienced during times of heavy rainfall when large amounts of surface water overwhelm the sewer network causing flooding. Temporary problems such as blockages, siltation, collapses and equipment or operational failures can also result in sewer flooding.

All Water Companies have a statutory obligation to maintain a register of properties/areas which have reported records of flooding from the public sewerage system, and this is shown on the DG5 Flood Register. This includes records of flooding from foul sewers, combined sewers and surface water sewers which are deemed to be public and therefore maintained by the Water Company. The DG5 register records of flood incidents resulting in both internal property flooding and external flooding incidents. Once a property is identified on the DG5 register, water companies can typically put funding in place to address the issues and hence enable the property to be removed from the register. It should be noted that flooding from land drainage, highway drainage, rivers/watercourses and private sewers is not recorded within the register.

No information has been provided to suggest that the site is susceptible to sewer surcharge flooding.

5.6 Other Sources:

Reservoirs with an impounded volume in excess of 25,000 cubic metres (measured above natural ground level) are governed by the Reservoirs Act and are listed on a register held by the Environment Agency. The site lies within the maximum inundation extent on the EA Reservoir Inundation Map when there is also flooding from rivers. The EA also advise on their website that reservoir flooding is extremely unlikely. There has been no loss of life in the UK from reservoir flooding since 1925. All major reservoirs have to be inspected by specialist dam and reservoir Engineers. In accordance with the Reservoirs Act 1975 in England, these inspections are monitored and enforced by the EA themselves. The risk to the site from reservoir flooding is therefore minimal and is far lower than that relating to the potential for fluvial / tidal flooding to occur. The Environment Agency Reservoir Flood Map illustrated below, illustrates the largest area that might be flooded if the storage area were to fail and release the water it is designed to hold during a flood event.

Records of flooding from reservoirs and canals are erratic as there is no requirement for the Environment Agency to provide information on historic flooding from canals and raised reservoirs on plans. In particular, the NPPF does not require flood risk from canals and raised reservoirs to be shown on the Environment Agency flood zones.

Overflows from canals can be common as they are often fed by land drainage, and often do not have controlled overflow spillways. Occasionally, major bank breaches also occur, leading to rapid and deep flooding of adjacent land.



Figure 13: Extract from Environment Agency Risk of Flooding from Reservoirs Map (Source: EA)

6. Flood Risk Management

6.1 Vulnerability to flooding:

The NPPF classifies property usage by vulnerability to flooding.

The existing building is a residential dwelling, which is classified as “more vulnerable” under the NPPF.

Post development, the site will remain “more vulnerable”, as the application is for the part single, part two storey rear/side extensions and porch addition, alterations to existing roof to create a habitable second floor with a rear dormer, roof light additions and alterations to existing fenestrations (to remain a single dwelling).

Accordingly, it is considered that the vulnerability of the site as a whole has not increased post development.

There will be no introduction of additional units or dwellings.

6.2 EA Standing Advice:

The EA Standing Advice guidance is for domestic extensions and non-domestic extensions where the additional footprint created by the development does not exceed 250m².

No additional residential units will be created as part of the development.

The proposed development is considered to fit within the EA's standing advice for domestic extensions.

6.3 Physical Design Measures:

The NPPF requires new residential floor levels be set at least 300mm above suitable modelled 1:100 year plus allowance for climate change flood levels.

Given that the proposed application is for the part single, part two storey rear/side extensions and porch addition, alterations to existing roof to create a habitable second floor with a rear dormer, roof light additions and alterations to existing fenestrations, finished floor levels will be set no lower than existing floor levels and internal access will be maintained from the ground floor to the upper floors of the property.

At this stage, there is no proposed basement as part of the development.

To help protect against flooding during extreme events, the applicant has agreed to implement flood resistant design measures into the proposal, in consultation with the Local Authority building control department. These measures can include the following:

- Waterproof screed used on ground floor;
- Closed-cell foam used in wall cavities;
- Waterproof internal render at ground floor level;

- Exterior ventilation outlets, utility points and air bricks fitted with removable waterproof covers;
- Plumbing insulation of closed-cell design;
- Non-return valves fitted to all drain and sewer outlets;
- Manhole covers secured;
- Anti-syphon fitted to all toilets;
- New kitchen units of solid, water resistant material;
- Use of MDF carpentry (i.e. skirting, architrave, built-in storage) avoided at ground floor level;
- New wiring or electrical circuit run from ceiling, with raised sockets at ground floor level;

The applicant should also consider the use of flood proof external doors and windows or demountable flood defence barriers to defend external doors if flood proof doors are not practical, or other planning constraints prevent it.

6.4 Safe Escape and Flood Action Plan:

The NPPF requires a route of safe escape for all residents and users to be provided from new residential properties in Flood Zone 3. Safe escape is usually defined as being through slow moving flood water no deeper than 25cm.

The site is situated within Flood Zone 3 when using the Environment Agency Flood Map for Planning (Rivers and Sea), however it should be noted that the proposed application is for the part single, part two storey rear/side extensions and porch addition, alterations to existing roof to create a habitable second floor with a rear dormer, roof light additions and alterations to existing fenestrations. No additional or new units or dwellings will be created as part of the development.

Safe escape is not a requirement under the EA Standing Advice guidance is for domestic extensions.

Residents and users should follow the warning and evacuation procedure detailed in the following section.

6.5 Flood Warning:

The EA is responsible for issuing flood warnings. Flood warnings are issued to the emergency services and local authorities. Both private individuals and organisations can sign-up to receive warnings via phone, text or email. This system of receiving warnings is currently voluntary.

Advice regarding severe flood warnings will generally be given during weather forecasts on local radio and TV. In the case of extreme events, warnings can also be disseminated via door to door visits by the police or locally appointed flood wardens.

The site lies within the Tidal Thames in the boroughs of Wandsworth and Richmond-Upon-Thames flood alert area (quickdial: 174105), and the Tidal Thames from Putney Bridge to Mortlake High Street East Flood Warning Area (quickdial: 174101).

The EA issue flood warnings/alerts to specific areas when flooding is expected. It is recommended that the applicant registers online with the free Environment Agency Floodline Warnings/Alert

Direct service at www.gov.uk/sign-up-for-flood-warnings to receive flood warnings by phone, text or email.

The flood warning service has three types of warnings that will help you prepare for flooding and take action:




| Flood Warning | Flood Alert | Flood Warning | Severe Flood Warning |
|------------------------|--|--|---|
| |  |  |  |
| What it means? | Flooding is possible. Be prepared. | Flooding is expected. Immediate action required. | Severe flooding. Danger to life. |
| When it's used? | Two hours to two days in advance of flooding. | Half an hour to one day in advance of flooding. | When flooding poses a significant threat to life. |
| What to do? | Be prepared to act on your flood plan. Prepare a flood kit of essential items. Monitor local water levels and the flood forecast on our website. | Move family, pets and valuables to a safe place. Turn off gas, electricity and water supplies if safe to do so. Put flood protection equipment in place. | Stay in a safe place with a means of escape. Be ready should you need to evacuate from your home. Co-operate with the emergency services. Call 999 if you are in immediate danger. |

Table 3: EA Flood Warning Service

6.6 Flood Plan:

It is recommended that the applicant and future owners, occupiers and Landlords of the property prepare a flood plan to protect life and property during a flood event:

Before a flood:

- Prepare and keep a list of all your important contacts to hand or save them on your mobile phone.
- Think about what items you can move now and what you would want to move to safety during a flood.
- Know how to turn off electricity and water supplies to the site.
- Prepare a flood kit of essential items and keep it handy. It can include copies of important documents, a torch, a battery-powered or wind-up radio, blankets and warm clothing, waterproofs, rubber gloves and a first aid kit including all essential medication.

During a flood:

- Activate the evacuation plan and evacuate the site.

- Remove cars from the site if there is sufficient warning and the water levels are not rising rapidly.
- Switch off water and electricity for the site.
- Tune into your local radio station on a battery or wind-up radio.
- Listen to the advice of the emergency service and evacuate if told to do so.
- Avoid walking or driving through flood water. Six inches of fast-flowing water can knock over an adult and two feet of water can move a car.

After a flood:

- If you have flooded, contact your insurance company as soon as possible.
- Take photographs and videos of your damaged property as a record for your insurance company.
- If you don't have insurance, contact your local authority for information on grants and charities that may help you.
- Flood water can contain sewage, chemicals and animal waste. Always wear waterproof outerwear, including gloves, wellington boots and a face mask.
- Have your electrics and water checked by qualified engineers before switching them back on.

6.7 Off-Site Impacts:**6.7.1 Fluvial floodplain storage:**

The NPPF requires that where development is proposed in undefended areas of floodplain, which lie outside of the functional floodplain, the implications of ground raising operations for flood risk elsewhere needs to be considered. Raising existing ground levels may reduce the capacity of the floodplain to accommodate floodwater and increase the risk of flooding by either increasing the depth of flooding to existing properties at risk or by extending the floodplain to cover properties normally outside of the floodplain. Flood storage capacity can be maintained by lowering ground levels either within the curtilage of the development or elsewhere in the floodplain, in order to maintain at least the same volume of flood storage capacity within the floodplain.

In undefended tidal areas, raising ground levels is unlikely to impact on maximum tidal levels so the provision of compensatory storage should not be necessary.

For development in a defended flood risk area, the impact on residual flood risk to other properties needs to be considered. New development behind flood defences can increase the residual risk of flooding if the flood defences are breached or overtopped by changing the conveyance of the flow paths or by displacing flood water elsewhere. If the potential impact on residual risk is unacceptable then mitigation should be provided.

The site is situated in Flood Zone 3 when using the Environment Agency Flood Map for Planning (Rivers and Sea). However, the application is for part storey rear/ side extensions and porch addition, alterations to existing roof to create a habitable second floor with a rear dormer, roof light additions and alterations to existing fenestrations less than 250m². Therefore, there will be no unacceptable loss of floodplain storage.

6.7.2 Surface Water Drainage:

The development will utilise Sustainable drainage systems (SuDS) design in accordance with the NPPF for Planning Applications and the drainage hierarchy as follows:

1. Store rainwater for later use;
2. Infiltration techniques;
3. Attenuate rainwater by storing in tanks for gradual release;
4. Discharge rainwater direct into watercourse;
5. Discharge rainwater into surface water sewer;
6. Discharge rainwater into a combined sewer;

Due to the small scale of development, a full Surface Water Drainage Strategy is not required at this stage of planning. However, SuDS features will be incorporated into the development where practically possible or will utilise the existing arrangement on site.

As such, any change in surface water runoff from the site will likely be negligible.

7. Sequential and Exception Test

The Sequential Test aims to ensure that development does not take place in areas at high risk of flooding when appropriate areas of lower risk are reasonably available.

The Sequential Test is applied to developments in areas identified as being at risk of any source of flooding now or in the future. The Sequential Test ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account.

The sequential 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. Other forms of flooding need to be treated consistently with river and tidal flooding in mapping probability and assessing vulnerability, so that the sequential approach can be applied across all areas of flood risk.

The site is situated within Flood Zone 3 when using the Environment Agency Flood Map for Planning (Rivers and Sea), within an area of 'medium' to 'very low' risk of flooding from surface water.

Post development, the site will remain "more vulnerable" (residential) throughout.

| Flood Zones | Flood Risk Vulnerability Classification | | | | |
|----------------|---|-------------------------|-------------------------|-----------------|------------------|
| | Essential infrastructure | Highly vulnerable | More vulnerable | Less vulnerable | Water compatible |
| Zone 1 | ✓ | ✓ | ✓ | ✓ | ✓ |
| Zone 2 | ✓ | Exception Test required | ✓ | ✓ | ✓ |
| Zone 3a | Exception Test required | X | Exception Test required | ✓ | ✓ |
| Zone 3b | Exception Test required | X | X | X | ✓ |

Table 4: Flood risk vulnerability and flood zone 'compatibility'

Using the table above, the proposed application is considered to be suitable within Flood Zone 3. The Sequential and Exception Tests do not need to be applied to minor developments and changes of use (this application is for 'minor development' – residential extensions and alterations).

8. Discussion and Conclusions

Unda Consulting Limited have been appointed by Yoho Living Ltd. to undertake a Flood Risk Assessment for the proposed development at 64 Boileau Road, Barnes, London, SW13 9BL. The FRA has been undertaken in accordance with the National Planning Policy Framework (NPPF) and the associated technical guidance.

The proposed application is for part single, part two storey rear/side extensions and porch addition. Alterations to existing roof to create a habitable second floor with a rear dormer, roof light additions and alterations to existing fenestrations (to remain a single dwelling). Post development, the site will remain "more vulnerable". Accordingly, it is considered that the vulnerability of the site as a whole has not increased post development.

The site is located within Flood Zone 3 (High Probability), which means it is defined as land having a 1 in 100 or greater annual probability of river flooding, or land having a 1 in 200 or greater annual probability of sea flooding.

The risk would appear to be tidal, originating from the River Thames located approximately 640m north of the site at the nearest point.

In-channel modelled flood levels for use within this report have been requested from the EA. The data is from the Thames Estuary 2100 (TE2100) study completed by HR Wallingford in 2008.

Node 2.19 is the closest in-channel node to the site, and therefore the most relevant for use. Comparison with topographic site levels (4.48m AOD to 4.72m AOD) shows that the site is below the present day modelled flood level, and below the future modelled extreme flood levels. However, the site is defended from direct inundation during an extreme event by the Thames Barrier and raised defences either side of the channel.

The design standard of protection of the flood defences for the Thames within proximity of the site is 0.1% AEP; they are designed to defend London up to a 1 in 1000 year tidal flood event. The defences are all raised, man-made and privately owned.

The site is shown to be outside of the modelled breach extent for the present day, but entirely within the extent for 2100.

According to EA records, there are no records of historical flooding at the site or surrounding areas.

The EA Risk of Flooding from Surface Water Map suggests that the site lies in an area of "Medium" to "Very low" risk from surface water.

The London Borough of Richmond Upon Thames Strategic Flood Risk Assessment shows the site to be located within an area of 75% or more susceptibility to groundwater flooding. No records of groundwater flooding at the site previously have been provided.

No information has been provided to suggest that the site is susceptible to sewer surcharge flooding.

Given that the proposed application is for the part single, part two storey rear/side extensions and porch addition, alterations to existing roof to create a habitable second floor with a rear dormer,

roof light additions and alterations to existing fenestrations, finished floor levels will be set no lower than existing floor levels, and internal access will be maintained from the ground floor to the upper floors of the property.

At this stage, there is no proposed basement as part of the development.

Safe escape is not a requirement under the EA Standing Advice guidance is for domestic extensions.

The site is situated in Flood Zone 3 when using the Environment Agency Flood Map for Planning (Rivers and Sea). However, the application is for a residential extensions and alterations less than 250m², and therefore there will be no unacceptable loss of floodplain storage.

Due to the small scale of development, a full Surface Water Drainage Strategy is not required at this stage of planning. However, SuDS features will be incorporated into the development where practically possible or will utilise the existing arrangement on site.

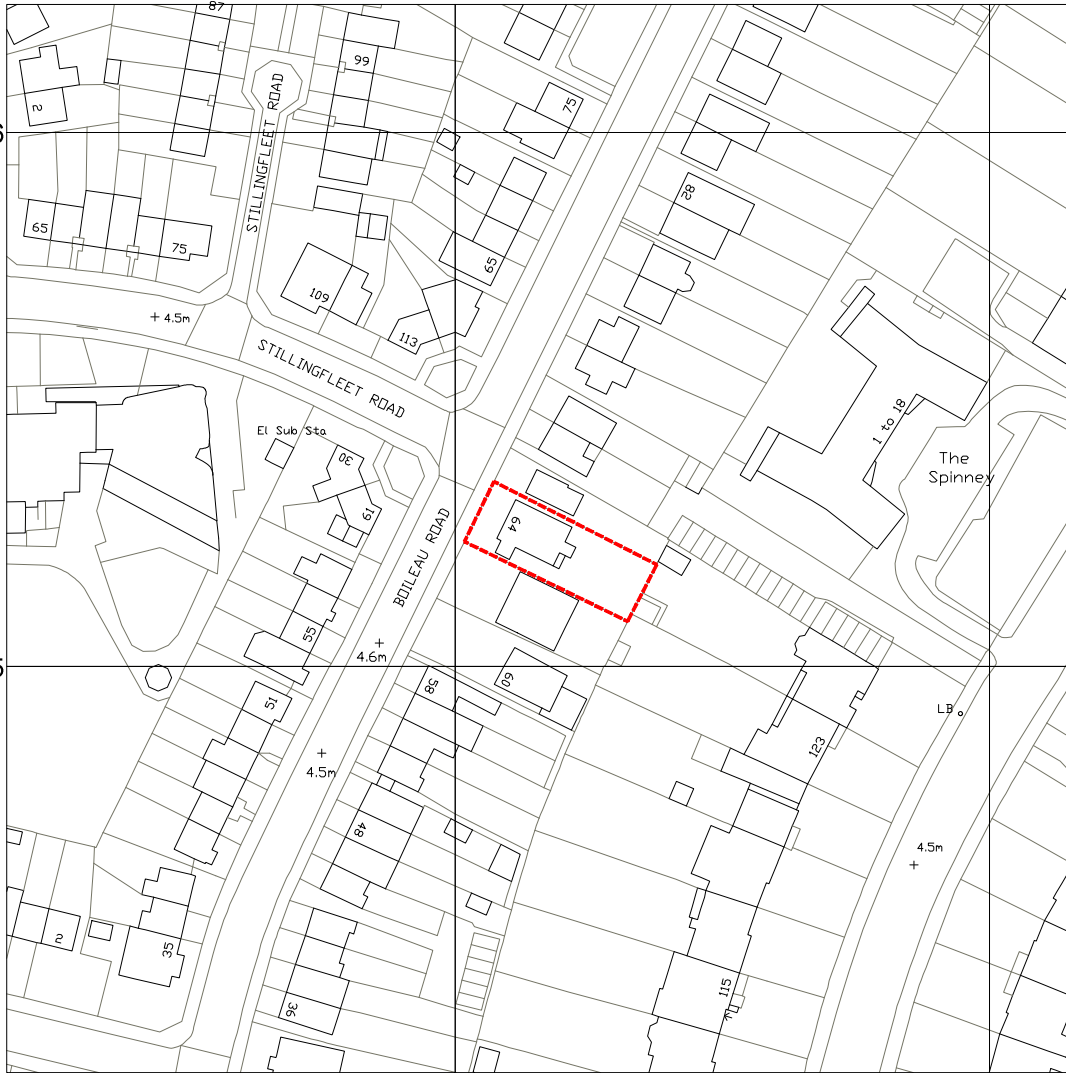
The applicant has confirmed that:

- The proposed development fits within EA standing advice for domestic extensions.
- No additional residential units will be created as part of the development.
- The additional footprint created by the development will not exceed 250m².
- Finished floor levels will be set no lower than existing floor levels.
- Internal access will be maintained from ground floor to the upper floors of the property.
- Flood proofing of the development will be incorporated as appropriate.
- A flood warning and evacuation plan will be implemented post development.
- The applicant will register with the free Environment Agency Floodline Alert Direct service.
- Due to the small scale of development, a full Surface Water Drainage Strategy is not required at this stage of planning for the main house as there are no proposed external alterations. However, SuDS features will be incorporated into the development where practically possible or will utilise the existing arrangement on site.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

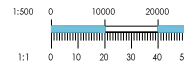
Appendix

- Site location, existing and proposed plans;
- EA Flood Map for Planning;



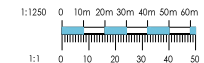
64 BOILEAU ROAD | EXISTING BLOCK PLAN | 1:500 @ A1

--- DENOTES SITE BOUNDARY



64 BOILEAU ROAD | EXISTING SITE LOCATION PLAN | 1:1250 @ A1

--- DENOTES SITE BOUNDARY



NOTES/KEY:

REV A | 23.12.22 | FIRST ISSUE

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UskuriTheobald
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AL1 3LF

info@uskuri-theobald.com

| | |
|------------------|-----------------------------|
| CLIENT NAME: | MR YANG |
| PROJECT ADDRESS: | 64 BOILEAU ROAD |
| | LONDON |
| | SW13 9BL |
| DESCRIPTION: | GENERAL ARRANGEMENT |
| | SITE LOCATION & BLOCK PLANS |
| SCALE: | VARIES @ A1 - SEE DRAWING |

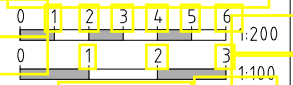
INFORMATION

DWG NO: 22051.00.001

REV: A

Notes

1. All Dimensions in Millimeters
2. All Material And Finishes
Of The External Walls And
Roof Of The Development
To Match The Original
Dwelling House



Scale Bar (Metres)

Client

Private

Site Address

64 Boileau Rd
London
SW13 9BL

Project Description

To be confirmed

Drawing Description

Existing Floor Plans

Date Issued

7/10/2022

Rev Date

Revison Suffix

Amendments

Drawing Status

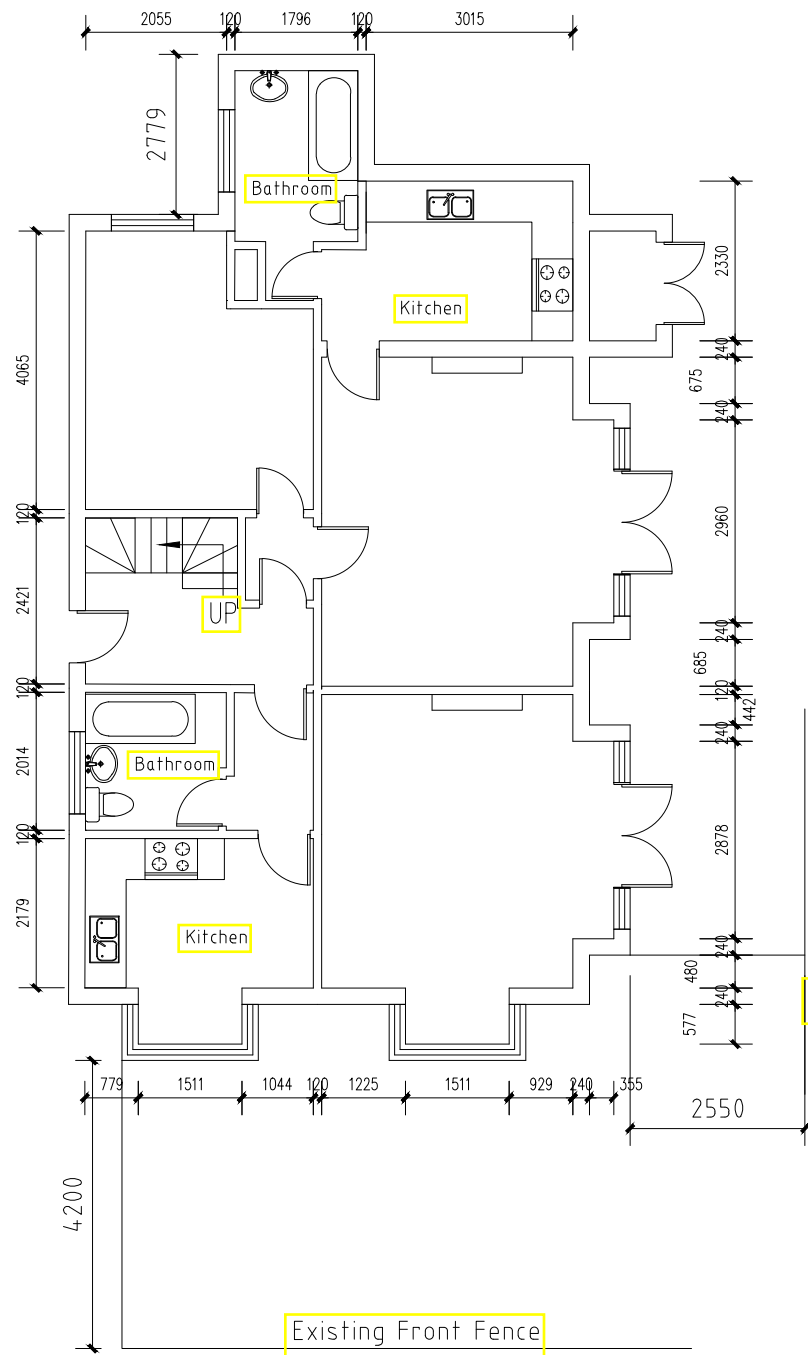
Planning

Drawing Number

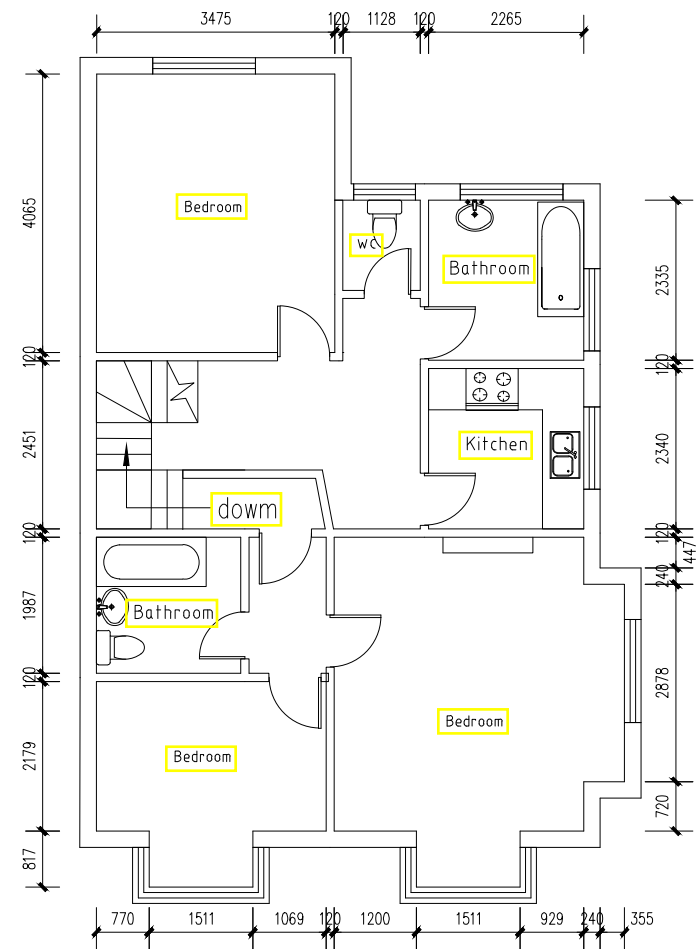
BX/18MNA/P/01

Our Reference No

Local Authority Reference No



Existing Ground Floor Plan @1:100



Existing Ground Floor Plan @1:100

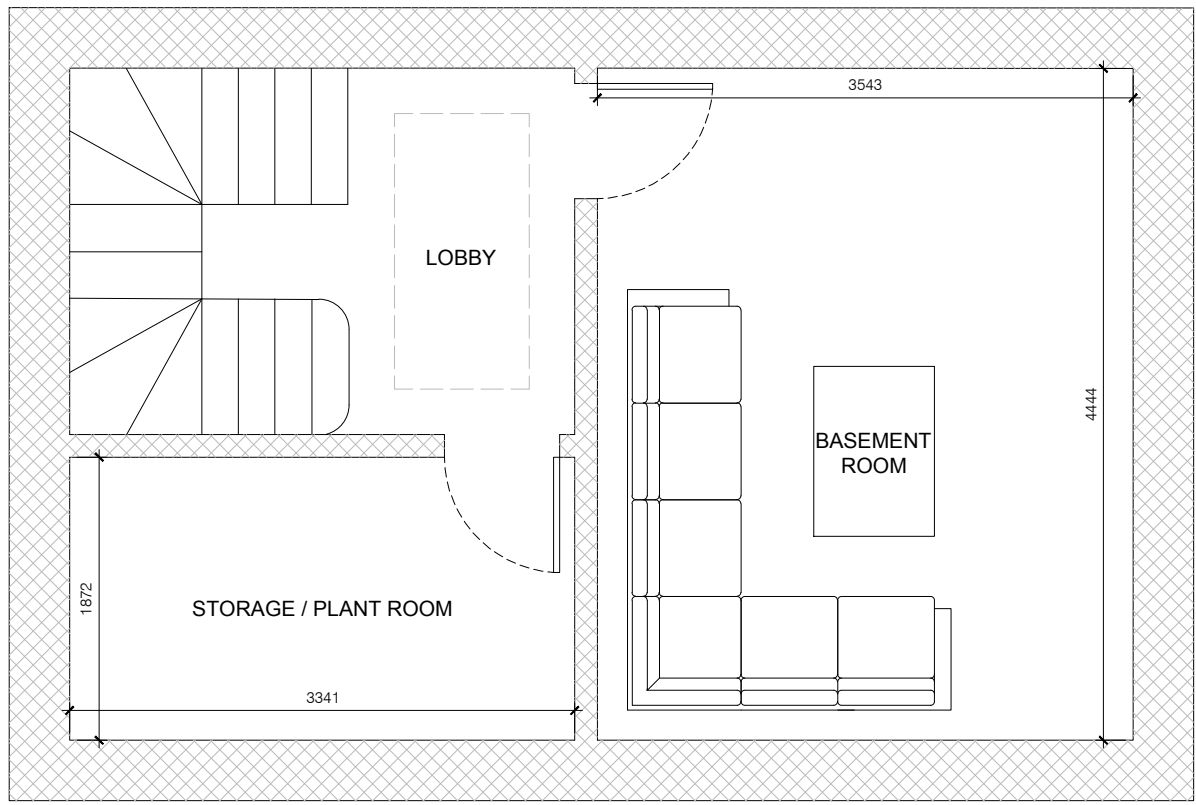
Drawn By
Jade

CHECKED BY
Lenn

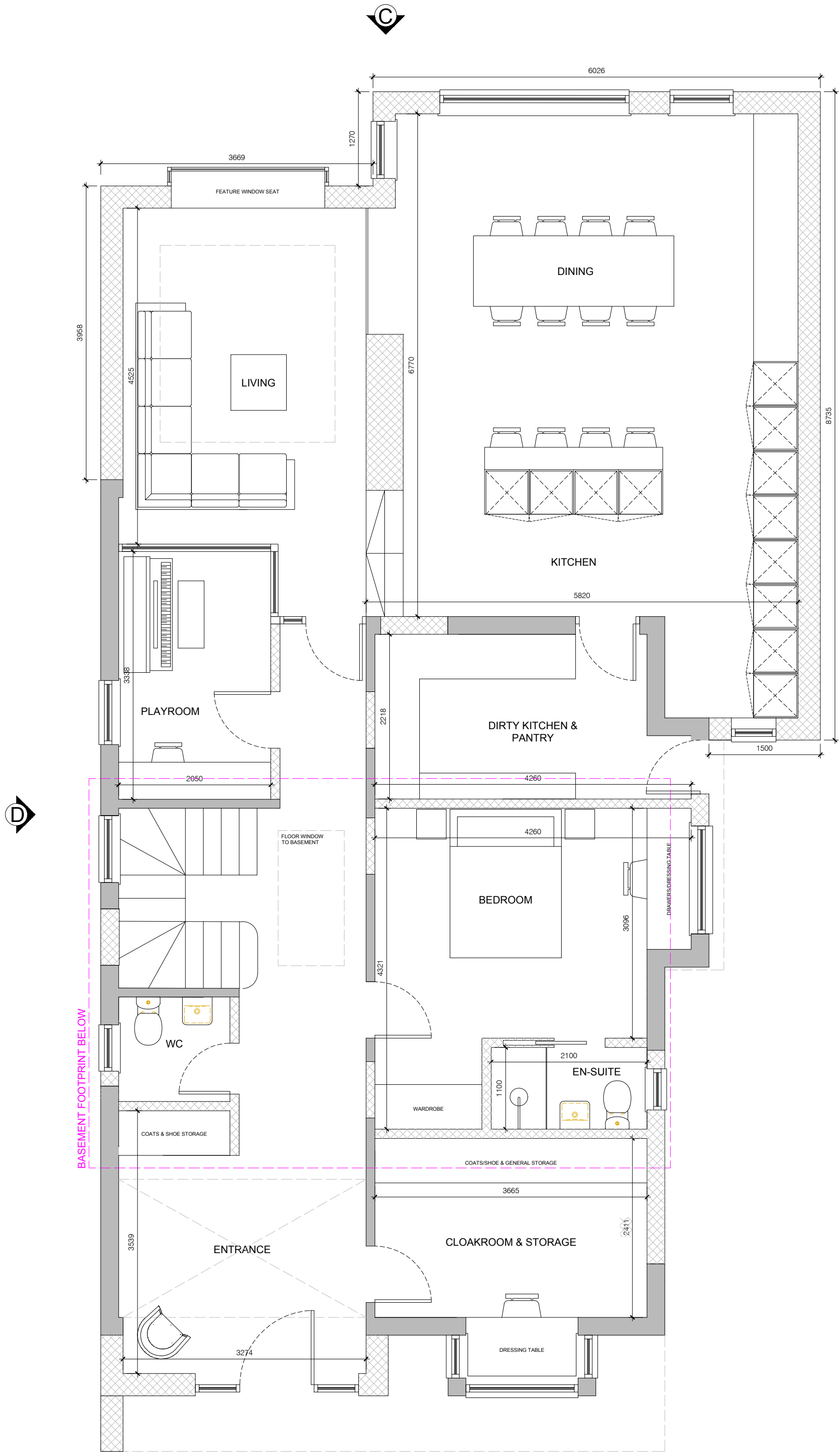
This Drawing is MKSummer Ltd. This drawing may not be copied by any third parties without prior written permission. This drawing is prepared for the purpose of obtaining planning permission or Building Regulations approval or as stated in the 'Drawing Status Box' only and not intend for any other use, do not constitute as full working drawings. All construction work carried out prior to receiving all necessary approvals for planning/or building regulations is entirely at the householders / Client risk. All building work to be completed to the satisfaction of the local authority building control officer and in accordance with current building regulations and as such additional unforeseen building works may be required on site. Copies from this drawing are not to be scaled. All dimension in millimeters. This drawing is to be scaled. All details to be verified and dimensions to be checked on site by the contractor prior to commencement of work. All omissions and discrepancies to be reported to lenn.hen@mksummer.co.uk immediately. The contractor shall inspect all adjoining properties which may be affected by the works and record and report to the owner and defects. The contractor shall be entirely responsible for the security, strength and stability of the building during the course of the works.

A3

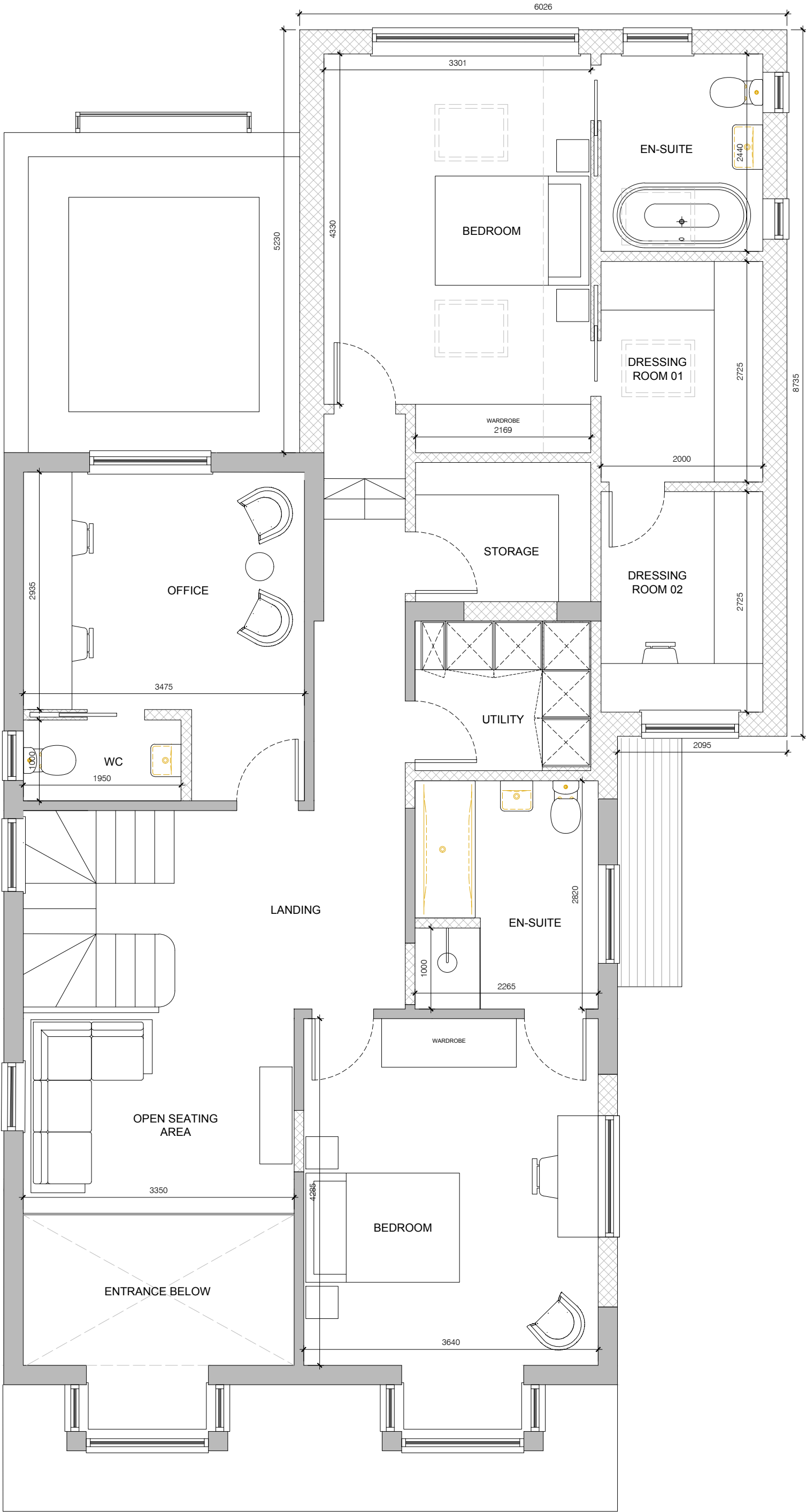
Scale As
Stated



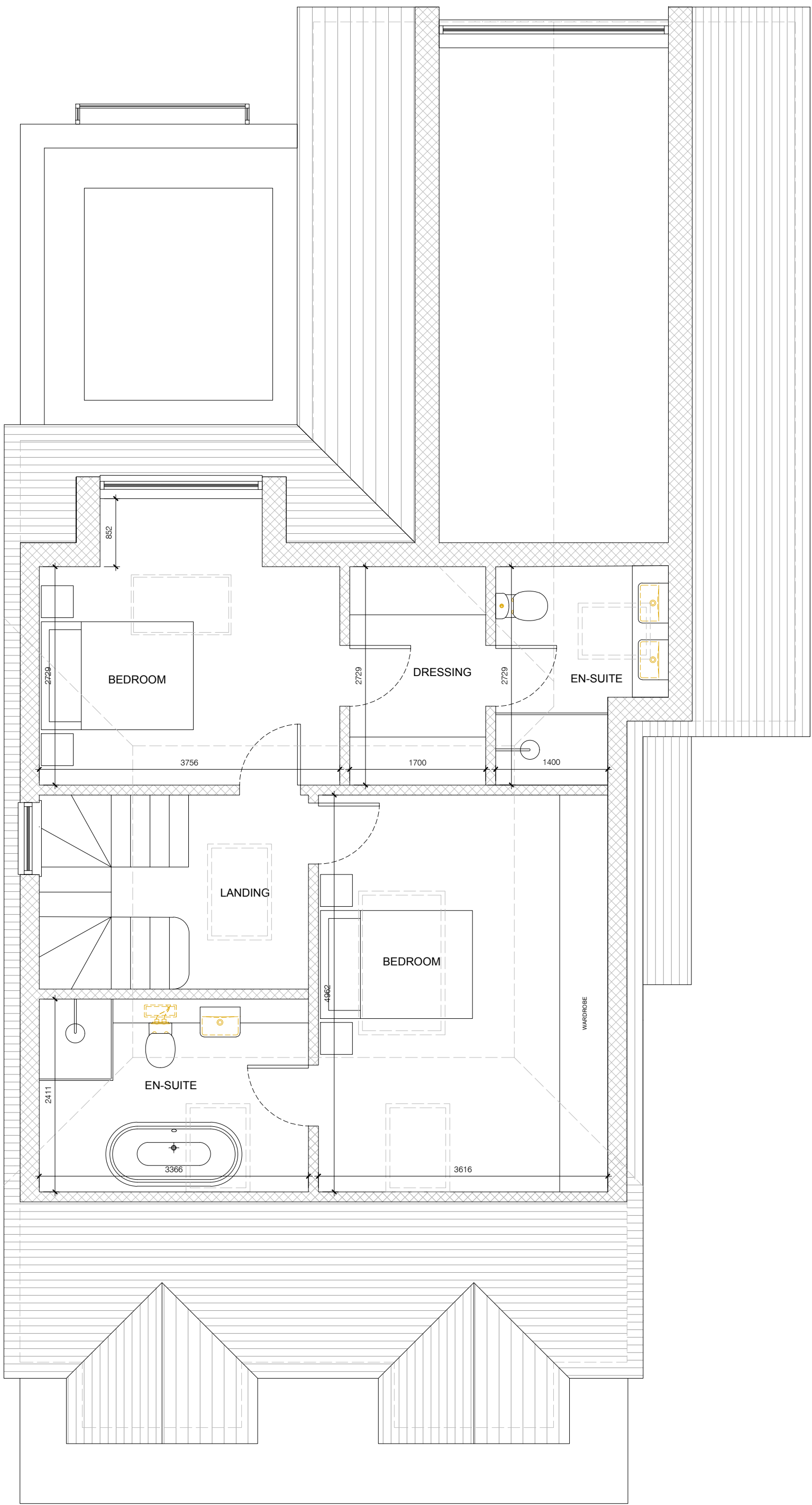
PROPOSED BASEMENT PLAN
POSITION OF BASEMENT HIGHLIGHTED ON GROUND FLOOR PLAN IN PINK



PROPOSED GROUND FLOOR PLAN

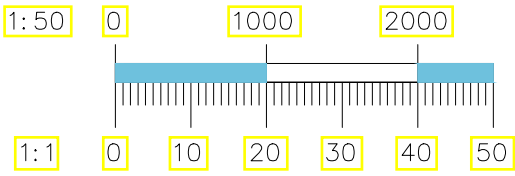


PROPOSED FIRST FLOOR PLAN



PROPOSED SECOND FLOOR PLAN

NOTES/KEY:



REV C | 03.08.23 | SF ADDITION

REV B | 30.06.23 | CHANGES AS PER COMMENTS

REV A | 01.02.23 | DESIGN SCHEME

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info@uskuri-theobald.com

CLIENT NAME: MR YANG

PROJECT ADDRESS: 64 BOILEAU ROAD

LONDON

SW13 9BL

DESCRIPTION: GENERAL ARRANGEMENT

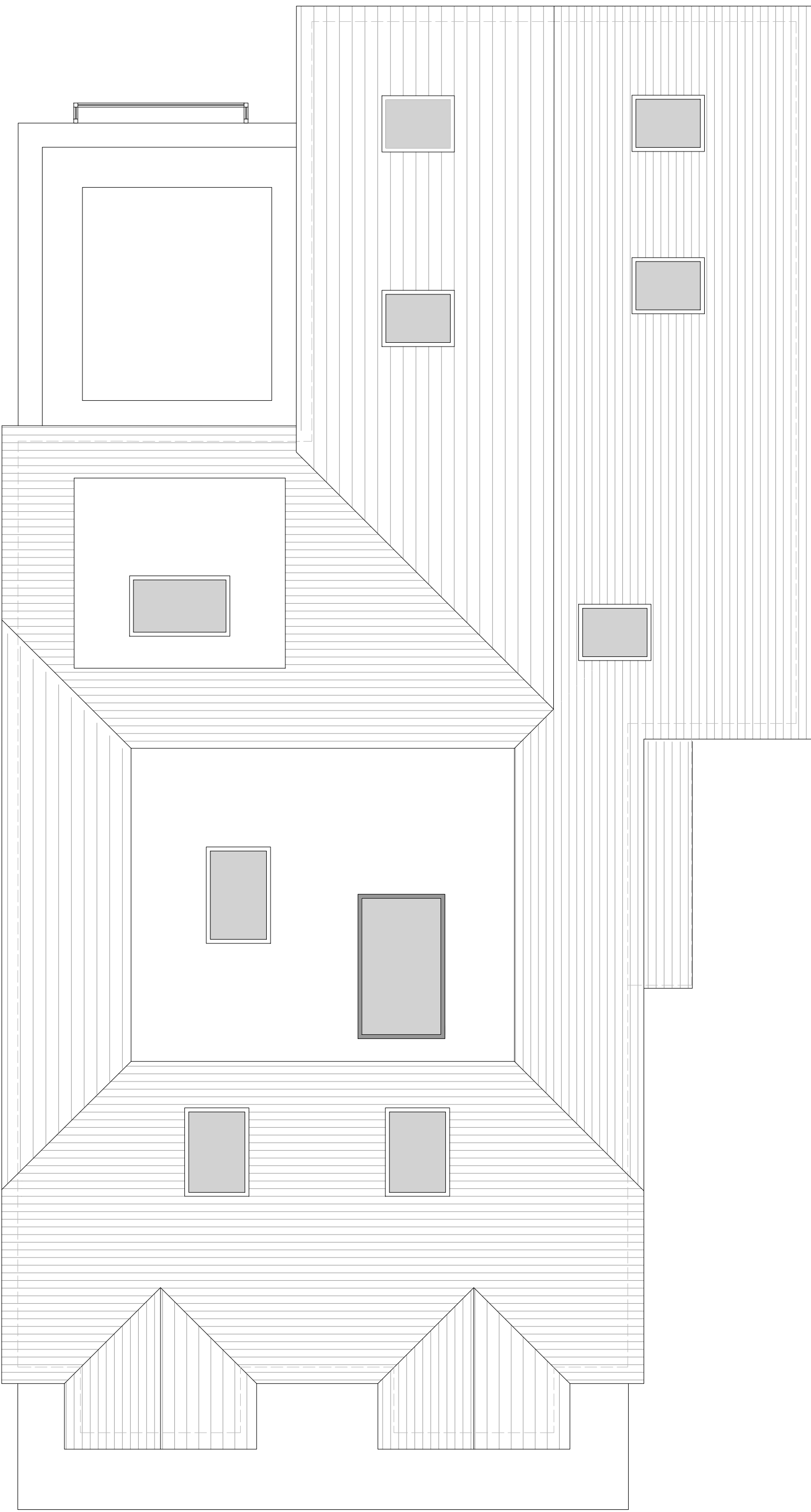
PROPOSED BASEMENT, GF, FF AND SF

SCALE: 1:50 @ A1

SKETCH SCHEME 04

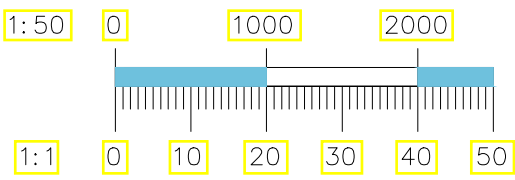
DWG NO: 22051.SK04.001

REV:C



PROPOSED ROOF PLAN

NOTES/KEY:



REV C | 03.08.23 | SF ADDITION

REV B | 30.06.23 |CHANGES AS PER COMMENTS

REV A | 01.02.23 | DESIGN SCHEME

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CLIENT NAME: MR YANG

PROJECT ADDRESS: 64 BOILEAU ROAD

LONDON

SW13 9BL

DESCRIPTION: GENERAL ARRANGEMENT

PROPOSED ROOF PLAN

SCALE: 1:50 @ A1

SKETCH SCHEME 04

DWG NO: 22051.SK04.002

REV:C



PROPOSED FRONT ELEVATION A



PROPOSED SIDE ELEVATION B

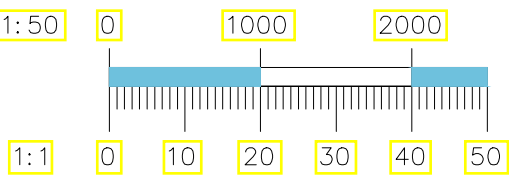


PROPOSED REAR ELEVATION C



PROPOSED SIDE ELEVATION D

NOTES/KEY:



REV B | 03.08.23 | DESIGN SCHEME

REV A | 01.02.23 | DESIGN SCHEME

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CLIENT NAME: MR YANG

PROJECT ADDRESS: 64 BOILEAU ROAD
LONDON
SW13 9BL

DESCRIPTION: GENERAL ARRANGEMENT
PROPOSED ELEVATIONS

SCALE: 1:50 @ A1

SKETCH SCHEME 04

DWG NO: 22051.SK04.003

REV:B

Flood map for planning

Your reference
93439

Location (easting/northing)
522519/177521

Created
23 Oct 2023 12:16

**Your selected location is in flood zone 3
– an area with a high probability of flooding.**

This means:

- you may need to complete a flood risk assessment for development in this area
- you should ask the Environment Agency about the level of flood protection at your location and request a Flood Defence Breach Hazard Map (You can email the Environment Agency at: enquiries@environment-agency.gov.uk)
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (find out more at www.gov.uk/guidance/flood-risk-assessment-standing-advice)

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.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2022 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>

Created
23 Oct 2023 12:16

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

