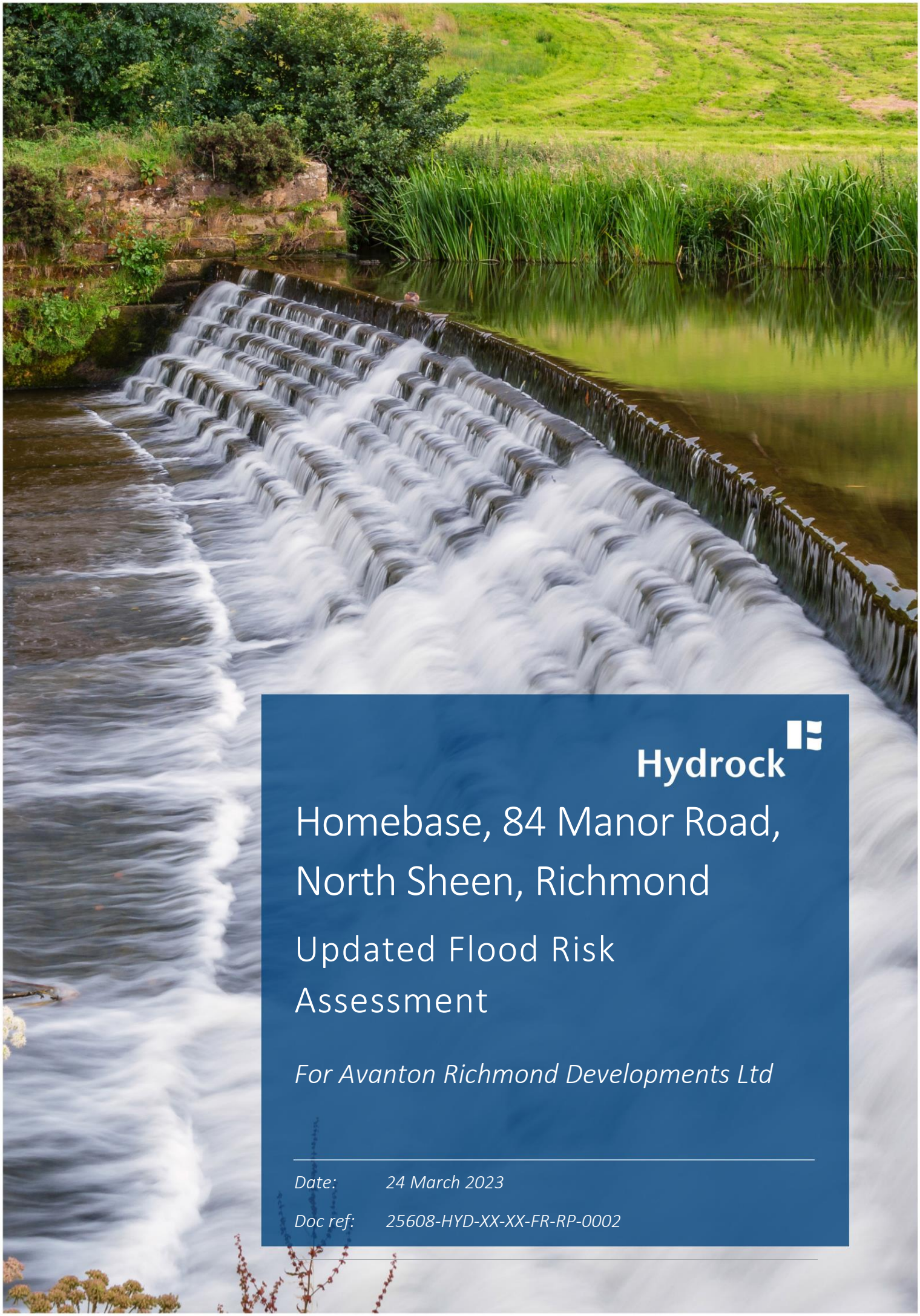

Hydrock

Homebase, 84 Manor Road, North Sheen, Richmond

Updated Flood Risk Assessment

For Avanton Richmond Developments Ltd

Date: *24 March 2023*

Doc ref: *25608-HYD-XX-XX-FR-RP-0002*

DOCUMENT CONTROL SHEET

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1. INTRODUCTION

This report has been prepared by Hydrock Consultants Limited (Hydrock) on behalf of our client Avanton Richmond Developments Ltd in support of a Planning Application for a residential development on the former Homebase Site, at 84 Manor Road, North Sheen, Richmond.

This report is to act as an updated report to that submitted as part of the previous application and undertaken by Fairhurst (Ref: 126782-RP-X-0001, Date: 15/07/2020) following a planning application for the redevelopment of the Site which was submitted to London Borough of Richmond Upon Thames (LBRuT) in February 2019 (ref. 19/0510/FUL) (the 'Original Proposed Development') and was considered at LBRuT Planning Committee on 3 July 2019.

Local Planning Authorities are advised by the Government's National Planning Policy Framework (NPPF) to consult the Environment Agency (EA) and Lead Local Flood Authority (LLFA) on development proposals in areas at risk of flooding. For a development of this nature the EA and LLFA normally require a Flood Risk Assessment to be submitted in support of such an application. The report has been prepared to consider the requirements of NPPF through:

- Assessing whether the proposed development is likely to be affected by flooding;
- Assessing whether the proposed development is appropriate in the suggested location, and,
- Detailing measures necessary to mitigate any flood risk identified, to ensure that the proposed development and occupants would be safe, and that flood risk would not be increased elsewhere.

The report considers the requirements for undertaking a Flood Risk Assessment as stipulated in NPPF Technical Guidance. Only those requirements that are appropriate to a development of this nature have been considered in the compilation of this report.

This updated report has been prepared in accordance with current EA Policy and as a result of changes to Policy and Planning Guidance to ensure the development is fully compliant with the current development plan.

2. UPDATES TO POLICY

Since the original FRA was undertaken there have been two key changes to local and national guidance which have impacted the flood risk on site.

2.1 Strategic Flood Risk Assessment

In September 2020, the new Richmond Strategic Flood Risk Assessment[1] was issued, with an updated and finalised report released in March 2021.

Within the SFRA, are a number of Strategic Policy Recommendations for the London Borough of Richmond upon Thames. The key policy change which has a potential impact on the Site is the recommendation to consider implementing the 1 in 100-year surface water extent as Flood Zone 3a (surface water) for the borough. With the requirements of Flood Zone 3a (surface water) potentially being similar to those adopted for Flood Zone 3a (fluvial / tidal) such as:

a. a. Development within the 1 in 100-year RoFSW mapped extent will be treated as if it were Flood Zone 3a as defined in PPG Table 1 (Paragraph 065).

b. Highly vulnerable developments may be possible within the 1 in 100-year RoFSW mapped extents outside of existing infrastructure or solid building footprints.

c. To enable development, proposals must provide mitigation and resilience against flood risk (taking advice from the LLFA as appropriate) and provide appropriate compensation to existing flood risk levels and volumes (addressing the predicted 1 in 100-year RoFSW mapped depths as a minimum), supported by detailed flood risk modelling if appropriate.

d. The development must not increase flood risk elsewhere and where possible reduce flood risk overall. Evidence demonstrating that all surface water is managed on site and that surface water is discharged at greenfield runoff rate (or within three times the calculated greenfield rate) is required.

On a site-specific level, the policy recommendation is that the London Borough of Richmond upon Thames should insist that submitted FRAs utilise the 'upper end' climate change scenarios when implementing the climate change allowances for surface water and fluvial flood risk.

The SFRA indicates surface water flood risk to vary throughout the Borough but the heavily urbanised and densely populated areas contribute to a mostly impermeable area with increased overland flows unable to drain away through infiltration. These surface water flow paths will flow towards localised topographical low point and have a higher peak runoff rate as a result.

With regards to site-specific flood risk assessment the SFRA states:

- *"Where major and minor developments are proposed within the 1 in 100-year surface water extent (based on the Surface Water Flood Risk Web Map), the London Borough of Richmond upon Thames requires the developer and/or applicant to submit a FRA"* and;
- *"Submitted site-specific FRAs should demonstrate how flood risk will be managed now and in the future over the proposed development's lifetime. The FRA needs to take climate change into account, and the vulnerability of land use classification of the development (Refer to Table 2 – Flood Risk Vulnerability of the PPG)"*.

[1] London Borough of Richmond Upon Thames Strategic Flood Risk Assessment - Level 1 (March 2021) [Metis Consultants]

2.2 National Planning Policy Guidance – Flood Risk and Coastal Change

On the 25th August 2022, the National Planning Policy Guidance (NPPG) for flood risk and coastal change was updated to bring it in line with the latest policy position on flood risk introduced in the updates to the National Planning Policy Framework in 2018 and 2021.

The key changes to impact the site within the NPPG are as follows:

- Assigning a "design flood" event. This is a flood event of a given annual flood probability, which for surface water is flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year).
- A sequential approach should be taken to the location of the development and this now includes development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding.
- Where possible It should be demonstrated that the development will reduce flood risk overall and this could be achieved through:
  - » Incorporating green infrastructure within the layout and form of development to make additional space for the flow and storage of flood water;
  - » Providing Sustainable Drainage Systems, that manage flood risk beyond the proposed site and above the usual standard, such as by removing surface water from existing combined sewers
- If the development or cumulative impact of the development may result in an increase in flood risk elsewhere as a result of impacts such as the loss of floodplain storage, the deflection or constriction of flood flow routes or through inadequate management of surface water. Site-specific flood risk assessments should assess these impacts and demonstrate how mitigation measures have addressed them.
- 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.
- Where development proposals would result in the deflection or constriction of identified flood flow routes, a site-specific flood risk assessment will need to demonstrate that such routes will be safely managed within the site. The impact of development on flood flow routes may also be an important consideration for sites which benefit from the presence of flood risk management infrastructure and where flow routes are likely to affect the site in the event of a failure or exceedance of such infrastructure. Any such measures to ensure development will not increase risk elsewhere would need to be secured in any planning permission granted. The provision of multifunctional sustainable drainage systems, natural flood management and green infrastructure can also make a valuable contribution to mitigating the cumulative impacts of development on flood risk.

3. SITE INFORMATION

3.1 Site Location

The site is located at the former Homebase site at 84 Manor Road, North Sheen, Richmond. It is triangular in shape and bound by the railway line to the south and north west boundaries and by Manor Road to the East. The site is surrounded by a combination of residential and commercial developments.

The approximate site address and Ordnance Survey grid reference is shown in Table 1 with the site location shown in Figure 1.

Table 1: Site Referencing Information

Site Referencing Information	
Site Address	Former Homebase 84 Manor Road North Sheen Richmond TW9 1YB
Grid Reference	518901, 175426

Figure 1. Site Location

3.2 Topography

The Topographical Survey indicates the site to be approximately 7mAOD at the east of the site, sloping to approximately 6mAOD at the south west of the site. The south west of the site is contained by a retaining wall with the railway alongside the site at approximately 7.3mAOD.

3.3 Existing Development

The total site area is 1.76ha which is almost entirely impermeable either (i) under buildings or (ii) paved parking, roads and other hardstanding areas.

3.4 Proposed Development

The submitted planning application is for *"Demolition of existing buildings and structures and comprehensive phased residential-led redevelopment to provide residential units (Class C3), flexible commercial, business and service uses (Class E), provision of car and cycle parking, landscaping, public and private open spaces and all other necessary enabling works."*

3.5 Planning History

A Planning Application (the 'Application') for the site was originally submitted to the London Borough of Richmond upon Thames ('LBRuT') on 14.02.2019 (Application Ref. 19/0510/FUL). LBRuT resolved to refuse the Application in July 2019 and the Application was referred to the Mayor of London (the 'Mayor') for his Stage 2 review. The Mayor set out, in his Stage 2 Report, that the Proposed Development is of a nature or scale that it would have a significant impact on the implementation of the London Plan policies on housing and affordable Housing. On 29 July 2019, the Mayor issued a Direction pursuant to Article 7 of the Oder and Powers conferred by Section 2A of the Town and Country Planning Act (1990) that he would act as the Local Planning Authority for the purposes of determining the application.

Since July 2019, amendments were submitted to the Mayor in July 2020. In October 2020, the Mayor granted conditional planning permission subject to the completion of a Section 106 Agreement.

In November 2021, following the adoption of the 2021 London Plan, the scheme was revised for conformity to the new policies as discussions regarding the Section 106 Agreement with the GLA and LBRuT had not been finalised. The current amendments include the amendments considered in November 2021.

This report is to serve as an update to those submitted as part of previous submissions. All elements within this report have been discussed with the GLA.

4. SOURCES OF FLOOD RISK

4.1 Fluvial / Tidal Flooding

The site is located south of a bend in the River Thames located 1.5 km north west and 1.5km east at its closest points respectively, flowing in a generally easterly direction.

The current Environment Agency (EA) Flood Zone Maps (Figure 2) shows the site to be entirely within Flood Zone 1 (Low Risk) with the closest area of Flood Zone associated with the River Thames approximately 400m to the east.

Figure 2: Flood Map for Planning

For reference, the Environment Agency Flood Zones are defined as follows:

- Flood Zone 1 (Low Risk) comprises land assessed as having a ≤0.1% AEP of fluvial or tidal flooding in any given year, equivalent to the ≥1,000yr return period flood event.
- Flood Zone 2 (Medium Risk) comprises land assessed as having a 0.1-1% AEP of fluvial flooding or 0.1-0.5% AEP of tidal flooding in any given year, equivalent to the 1,000-100yr return period flood event.
- Flood Zone 3 (High Risk) comprises land assessed as having a ≥1% AEP of fluvial flooding or ≥0.5% AEP tidal flooding in any given year, equivalent to the ≤100yr return period flood event.

Neither the London Borough of Richmond upon Thames Strategic Flood Risk Assessment nor the EA Recorded Flood Outlines indicate the site to have been impacted by previous incidents of fluvial flooding.

Whilst the potential effects of climate change could increase frequency, depth and extent of fluvial flooding, given the lack of main watercourses in the immediate vicinity of the site, any increase in flood risk is considered unlikely to be of a magnitude so as to result in on-site fluvial flooding. The site can therefore be concluded to be at 'low' risk of fluvial flooding.

4.2 Tidal Flooding

The River Thames is considered to be tidal within the borough of Richmond upon Thames. However, as the site lies within Flood Zone 1 it is considered to be at Low risk of Tidal Flooding.

4.3 Surface Water Flooding

Surface water flooding occurs as the result of an inability of intense rainfall to infiltrate the ground. This often happens when the maximum soil infiltration rate or storage capacity is reached. Flows generated by such events either enter existing land drainage features or follow the general topography which can concentrate flows and lead to localised ponding/flooding.

The EA Surface Water Flood Risk Map (Figure 3) shows the site predominantly at 'Low risk' of surface water flooding, with some isolated patches of medium risk within the south of the site and along the north west boundary associated with the railway line. There are some 'high risk' areas (>10%) around the edge of the building.

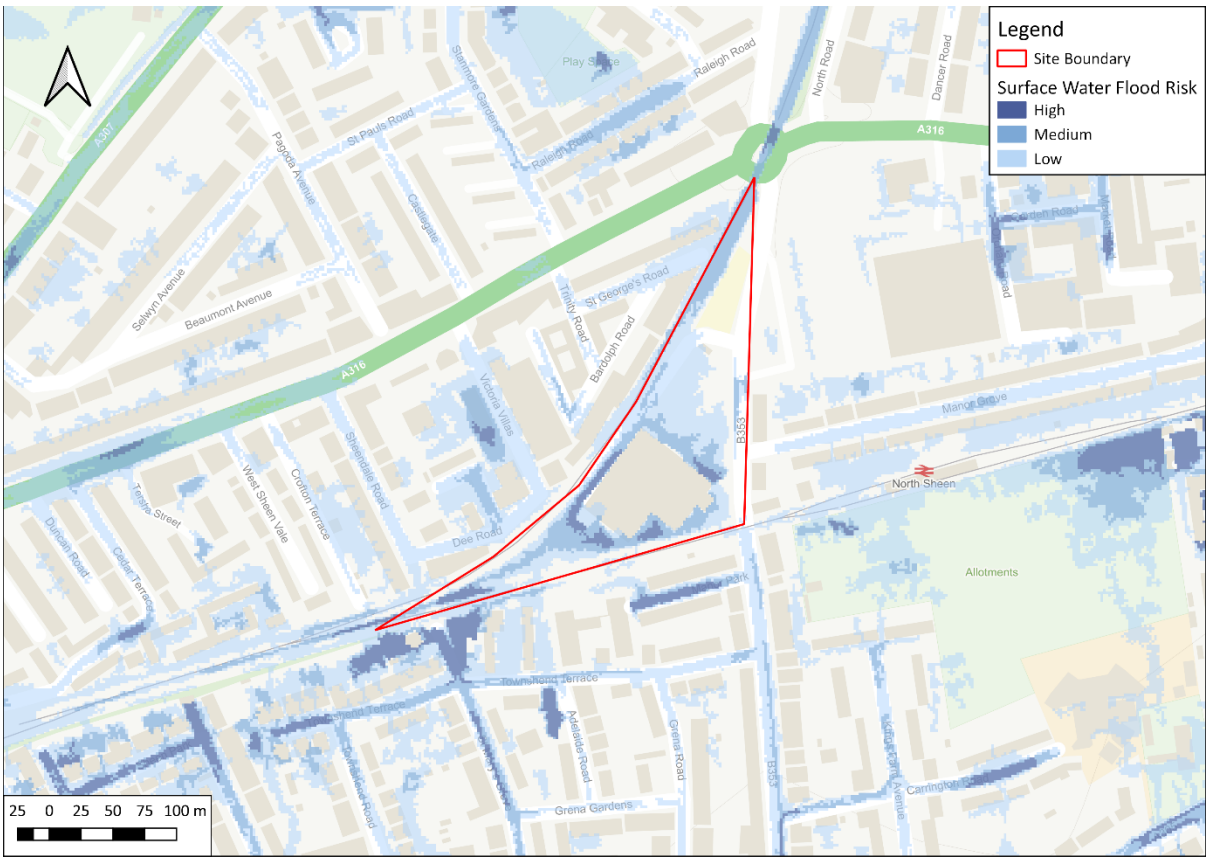
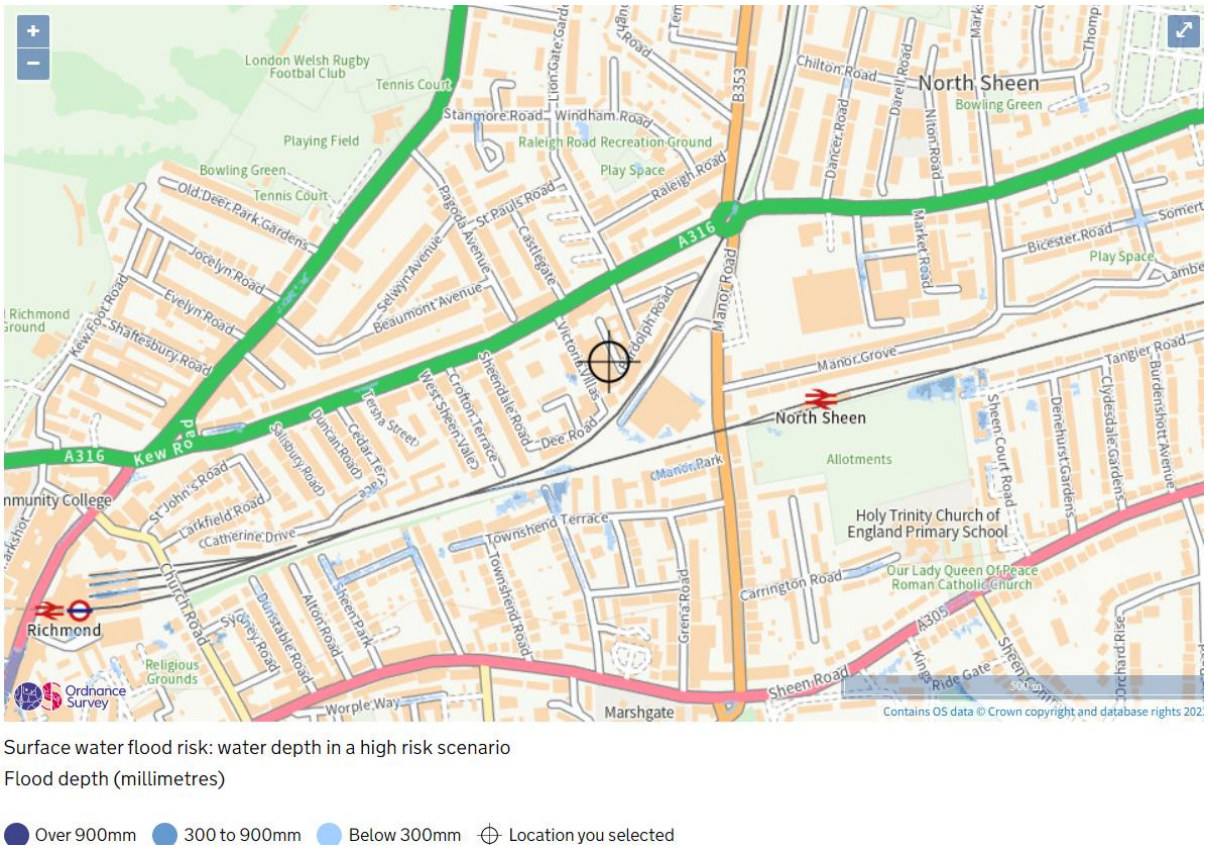


Figure 3: Surface Water Flooding

In the low-risk scenario depths range from below 300mm to 900mm, whilst in the high-risk scenario the site is predominantly free from surface water flooding except for a few isolated pockets around the boundary of the existing building more likely to be associated with topographical depressions than a surface water flow route.



Surface water flood risk: water depth in a high risk scenario
Flood depth (millimetres)

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

Figure 4: High Risk Scenario - Surface Water Flooding

The Strategic Flood Risk Assessment shows depths of flooding across the site. Figure 5 shows during the 1 in 100-year event depths are between 0.15 to 0.3m in the southern part of the site whilst the northern part of the site is free from surface water flooding.

Figure 5: SFRA Surface Water Flood Depths

It should be noted that the EA mapping does not take into account of existing positive drainage systems in the vicinity and given the sites location in a highly developed area are likely to be extensive. Such a system would likely mitigate the risk of any overland flows entering the site.

4.3.1 Surface Water Modelling

Given the indicated risk of surface water flooding on the site, additional hydraulic modelling has been undertaken by Hydrock to confirm existing risk and ensure any risk post-development can be safely managed and / or mitigated. Full details and methodology of the hydraulic modelling are included within the Hydraulic Modelling report (Ref: 25608-HYD-XX-XX-RP-FR-0003), submitted alongside this FRA. In line with standard modelling practice and guidance, no accommodation has been made for onsite drainage and as such the results are considered conservative and likely an over-estimation of the flood risk on site.

Results of the hydraulic modelling confirm in existing conditions, the site is predicted to lie within a key surface water flow route as shown by the current EA Mapping. This surface water flow route is indicated to occur in all modelled scenarios except the smallest 1 in 5-year and -30-year. Surface water flows are indicated to enter the site via the south western and southern boundaries and flow around the existing Homebase developments on site eventually discharging to the adjacent railway along the north western boundary. The results also confirm that flooding is predicted to also pond around the existing building with depths reaching up to worst-case 450mm in places in the 1 in 100-year plus climate change design event (Figure 6).

The results of the modelling also indicate significant flooding to be present on the adjacent railway line along the north western boundary. Predominantly flows enter the railway line after they flow through the site and due to ground levels, these flows are shown to be attenuated on this land in all scenarios with maximum depths approximately 150-1003mm in the climate change design event.

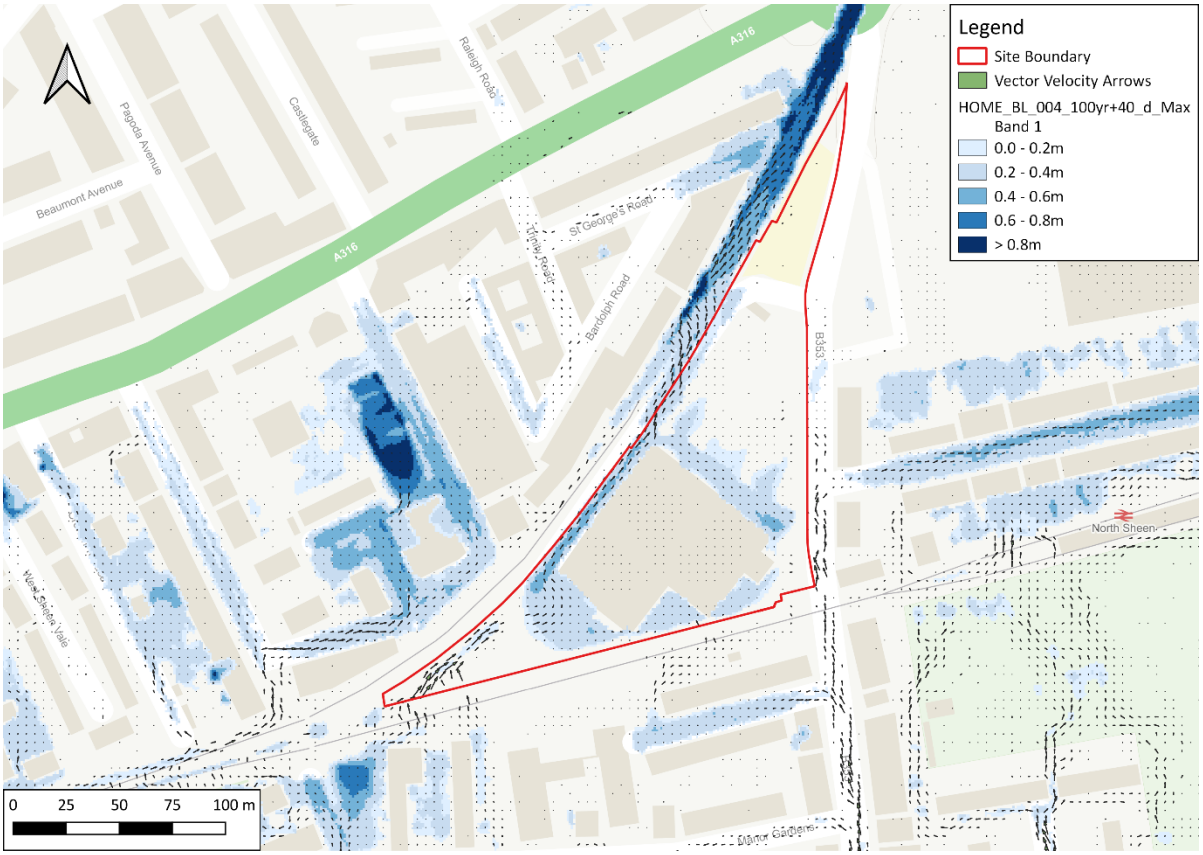


Figure 6. Baseline Modelling - 1 in 100-year plus 40% Climate Change Maximum Depths and Velocity

Following confirmation of the existing risk to site, an exercise was undertaken to confirm risk following the development of the proposed residential and commercial units. Proposed building footprints, FFLs and landscaping levels were included with localised lowering of public realm areas to maintain the existing flow route through the site and where possible attenuate flows as it occurs within the baseline scenario (i.e. deviate from the existing mechanisms as little as possible).

Results of the post development modelling indicate flows would not be restricted and the key flow route from the south west corner would be maintained, with the surface water flow route following topography through the site around the proposed developments. Flooding is predicted to be at its deepest in the south west corner and in the central courtyard area (which has been designed as such) with maximum onsite depths in this scenario indicated to be approximately 400mm, but the majority of onsite flooding is predicted to be below 200mm and considered "shallow".

On site levels have been graded to ensure the existing flow route onto the railway is maintained but managed through the site whilst also ensuring minimum changes to flood depths on Manor Road. Results show an increase of approximately 17mm (and within model tolerance for surface water modelling) onto the railway however the modelling does not include any impacts of on-site surface water drainage features or infiltration which is expected to cause a significant reduction in all flood events. Given this, the modelling is considered to be extremely conservative and as such the increase to the railway considered to be a negligible increase (within acceptable model tolerance) given the existing large depths (>1000mm) already predicted.

Predicted flood maximum flood levels around the proposed blocks are shown below:

Table 2. Post-Development Predicted Maximum Flood Levels - 1 in 100 year plus 40% Climate Change Event

	Maximum Flood Level (mAOD)
Block A	6.38
Block B	6.38
Block C	6.50
Block D	6.78

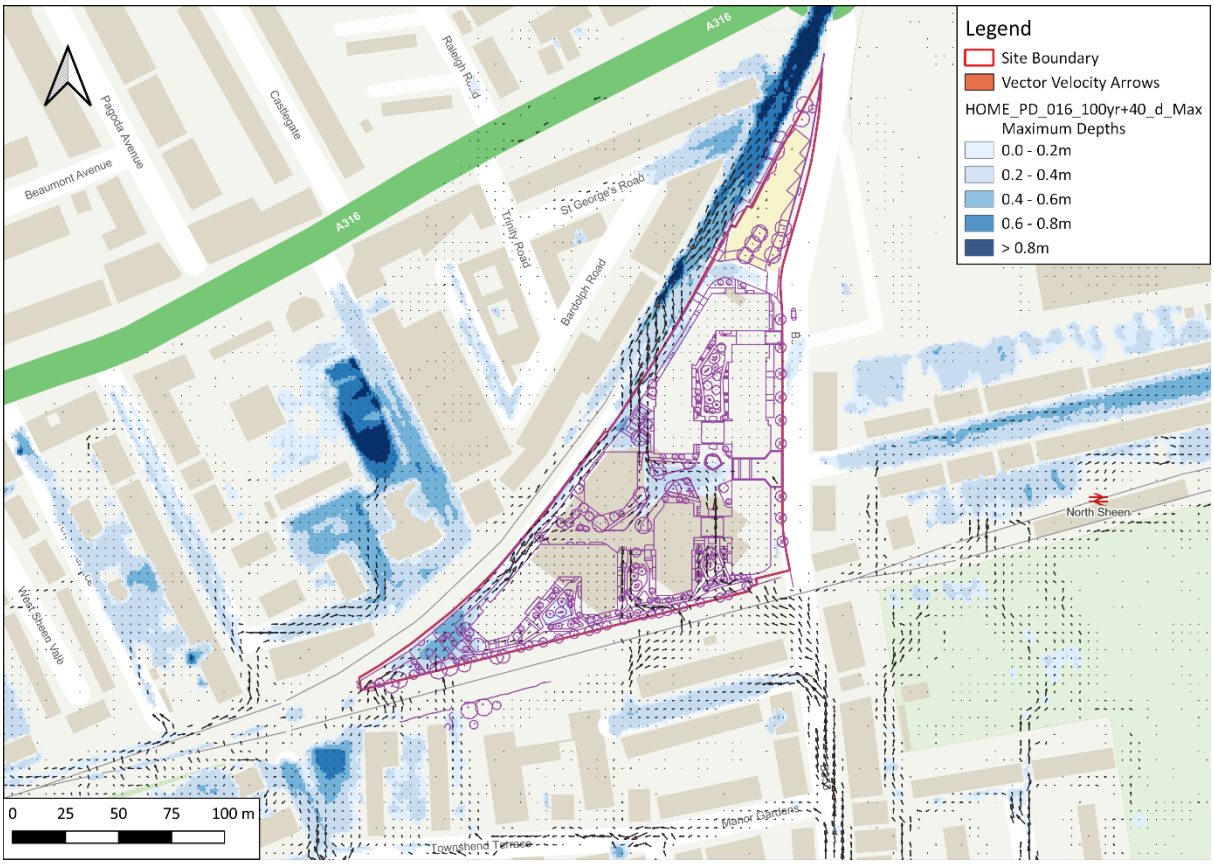


Figure 7. Proposed Development Modelling - 1 in 100-year plus 40% Climate Change Maximum Depths and Velocity

The modelling therefore confirms the site to be at risk of surface water flooding in both the present day and future scenarios and as such, following discussions with the GLA, recommended mitigation has been provided in Section 5.2.

4.4 Groundwater Flooding

According to the BGS Geology viewer the site is underlain by bedrock of the London Clay Formation comprising clay and silt, with superficial deposits of the Kempton Park Gravel Member comprising sand and gravel, suggesting variable permeability.

In 2021, ground investigation undertaken by Fairhurst on behalf of Avanton Richmond Development Ltd (ref: 126782/R2, dated: 08/07/2021) recorded groundwater levels on site to range between 2.46 and 4.68m below ground level (bgl).

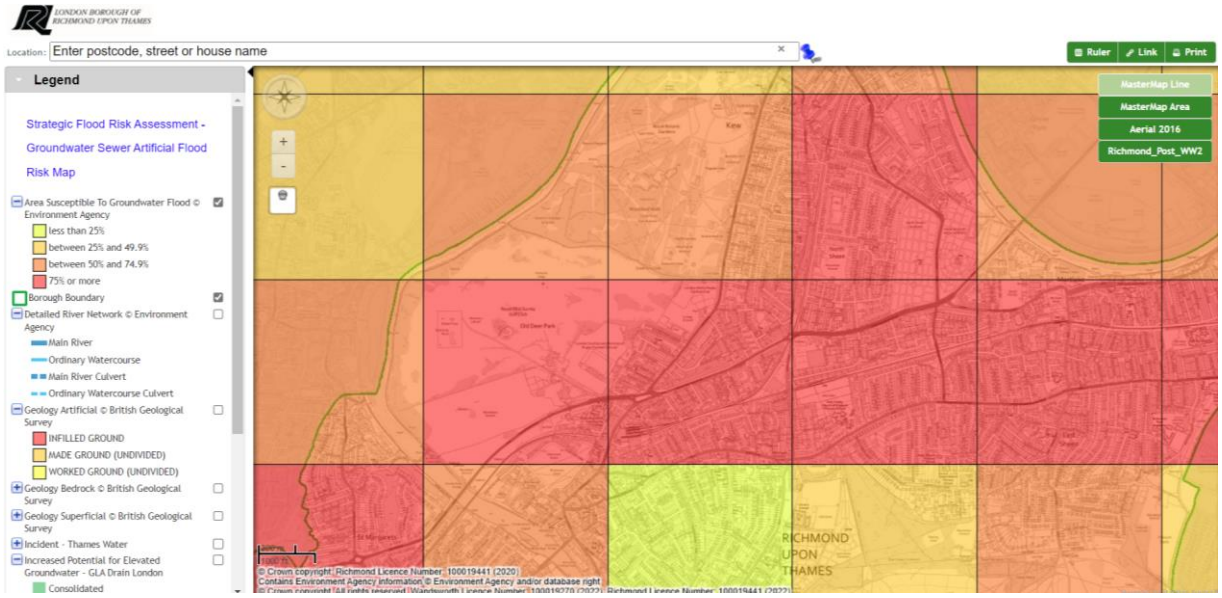


Figure 8: SFRA Groundwater Flooding

The SFRA shows the site, like large parts of Richmond, to lie in an area which is 75% or more susceptible to groundwater flooding. This is most likely due to the permeable superficial deposits.

Further groundwater investigations were undertaken as part of the SFRA in March 2021 which determined that the site lies on the edge of a throughflow catchment area. These are catchments which met all the requirements in the methodology, and therefore possessing properties which may be at risk of throughflow flooding.

The investigation identified that if subsurface developments take place in upstream areas of the other catchments identified as 'throughflow catchment areas', then properties in the downstream regions of the catchment may be at risk of flooding due to throughflow.

In recognition that new basement developments may have an influence on subsurface level flows, a set of recommended policies and guidance recommendations were developed for these catchment areas.

Recommended guidance in relation to Flood Risk and Drainage suggest the following needs to be considered as part of the screening assessment:

- Will the proposed subsurface development result in a change in impermeable area coverage on the site?
- Will the proposed subsurface development impact the flow profile of throughflow, surface water or groundwater to downstream regions?
- Will the proposed subsurface development increase throughflow or groundwater flood risk to neighbouring properties?

This is addressed in the Basement Impact Assessment, prepared by Manhire, submitted along with the amended submission.

4.5 Sewer and Infrastructure Failure

The site is within a highly developed area with mixed use residential, commercial and industrial use developments bordering the site in all directions and as such it is highly likely that there is an extensive engineered drainage system serving the surrounding areas. The slight gradient shown on site suggests

that in the event the surrounding sewer system were to fail or surcharge within the vicinity of the site, any surcharged sewer overland flows generated are likely to follow the prevailing topography as 'sheet flow' and be shallow in nature.

Thames Water has identified 7 indoor incidents and 2 outdoor incidents associated with the site.

Whilst the EA Reservoir Failure Extent mapping (EA, 2022)[2], does not show the site to lie within the extent of sole potential reservoir flooding, the site is expected to be within the maximum flood extent in the event of a failure of multiple reservoirs upstream when there is also flooding from rivers. Given the monitoring and maintenance requirements for such reservoirs under the Reservoir Act (1975), the risk of such an occurrence is considered very low, and as such there is only a 'residual' risk of flooding due to reservoir failure.

There is no known risk of flooding from canals or any other artificial sources at the site and as such the site is concluded to be at 'negligible risk' from infrastructure failure flooding.

[2] EA Long Term Flood Risk Service - https://check-long-term-flood-risk.service.gov.uk/map

5. NATIONAL PLANNING POLICY FRAMEWORK

5.1 Sequential and Exception Test

This assessment has demonstrated that the site is on land designated as Flood Zone 1 by the EA's Flood Zone Mapping.

Paragraph 162 states the aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source.

As the Environment agency surface water flood maps show the site to be at risk of surface water flooding a sequential test has been requested by the GLA and is submitted with this application (25608-HYD-XX-XX-RP-FR-0001).

The NPPG Flood Risk Vulnerability and Flood Zone Compatibility matrix (Table 3 of the NPPG) also indicates that all forms of development are "appropriate" in Flood Zone 1 without application of the Exception Test.

Accordingly, the application of the Exception Test is addressed within the Sequential Test report (26508-HYD-XX-XX-RP-FR-0001).

5.2 Mitigation Measures

Whilst an Exception Test is not explicitly required under the NPPG, the following section details any measures recommended to mitigate any 'residual' flood risks and to ensure that the proposed development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, in accordance with the requirements of section 'b' of the Exception Test (Paragraph 164) outlined in the NPPF.

5.2.1 Finished Floor Level

Whilst the site is within Flood Zone 1, given the currently identified risk of surface water flooding, finished floor levels have been set to best mitigate the predicted surface water flood risk whilst also ensuring a coherent design with multiple other disciplines. Whilst the modelling indicates potential internal flooding as a result of surface water flows, following discussions with the GLA (02/11/2022) mitigation measures have been agreed in principle to ensure the risk is adequately managed / mitigated.

Whilst finished floor levels have been raised as high as practically possible whilst ensuring level access it is recommended a number of flood resistance and resilience measures are incorporated into the design and construction of the ground floor level. The purpose of such measures is to reduce the risk of flood water entry wherever possible, and limit the impact should internal building flooding occur i.e. in the event of a reservoir breach.

The following potential measures for the ground floor level are in accordance with the Government's Improving the Flood Performance of New Buildings document, and include:

- The setting of ground FFLs at a high a level as feasible
  - » Block A (Northern Portion) - 6.45mAOD.
  - » Block A (Southern Portion) - 6.6mAOD
  - » Block B - 6.45mAOD

  - » Block C - 6.45mAOD
  - » Block D - 6.75mAOD
- Ground supported floor construction.
- Water resistant floor finishes, i.e. tiles as opposed to carpet.
- External and internal ground floor level walls constructed of materials with low water penetration, good drying ability, and good retention of pre-flood integrity.
- Sensitive services (i.e. electrics) brought in and continued at a high a level as possible, and ideally at a minimum level of 300mm above finished floor levels.
- Lifts within ground floor entrance lobbies to be designed and installed so as to be flood resilient, i.e. water-sensitive apparatus/controls to be set at a minimum level of 300mm above finished floor levels.
- The installation of 'active' flood measures i.e., permanent 'flood proof' doors to be installed on ground floor entrances of buildings (with crest level of 600mm freeboard above the 1 in 100-year + climate change design event) in the event of internal flooding (reservoirs / surface water).
- Electric vehicle charging should either be removable (so it can be removed on receipt of an EA warning) or of a construction that will be unaffected by flood waters.

5.2.2 Safe Access and Egress

Whilst the site is indicated to be within Flood Zone 1 and therefore at low risk of fluvial and tidal sources, EA mapping and further detailed hydraulic modelling has been undertaken by Hydrock which confirms the site to be at risk of flooding from surface water sources as a result of an offsite flow route from the south west and southern boundaries. EA Mapping also identifies the site to lie within the maximum extent in the event of a catastrophic breach in the upstream reservoirs. To manage safe access and egress to site occupants Hydrock have prepared a Flood Warning and Evacuation Plan (FWEP) (Ref: 25608-HYD-XX-XX-RP-FR-0004). This highlights the flood risk to visitors and details the procedures to follow in the event of a Flood Warning from the EA being issued for the area.

5.2.3 Floodplain Storage

On the basis that the site has been demonstrated to be at low risk of fluvial and tidal flooding, and therefore outside a functioning floodplain, the proposed development is not considered to increase flood risk within the catchment through a loss of floodplain storage, and accordingly no further mitigation measures are required in this respect.

With regards to surface water flooding, hydraulic modelling has shown that any offsite increase as a result of the development is kept to a minimum, within model tolerance and predicted worst-case owing to no drainage included in the model, through lowering of onsite levels to maintain the existing flow route and attenuate on site where possible.

6. SUMMARY

This Flood Risk Assessment (FRA) report has been prepared by Hydrock on behalf of Avanton Richmond Developments Ltd in support of a planning application for a proposed development at the Former Homebase Site, 84 Manor Road, North Sheen, Richmond.

A detailed assessment of flood risk has identified that the site is located within Flood Zone 1 (Low Risk) in respect of fluvial flood risk. Hydraulic modelling has been undertaken due to the identified risk of surface water flooding on the site through the current EA Mapping. Results of the modelling confirm the site to be at risk of surface water flooding with the site being located in a key surface water flow route, entering in the south western and southern boundaries, and discharging onto adjacent railway land in the north west.

Post development modelling has been carried out to ensure the flow route is safely managed through preferential lowering on site to minimise any offsite risk. Where risk is still identified on site, a number of flood resistant measures have been recommended to incorporate within the design and construction of the development with a key feature being flood proof doors where there is a potential for flooding.

The site is indicated to be at low or negligible risk from all other assessed sources.

The sequential test has been requested due to surface water flooding on site and is included within the planning application.

In accordance with the NPPF and NPPG, the application of the Exception Tests is concluded to not be required in this instance.

Due to the indicated surface water risk on site safe access and egress has been addressed through a Flood Warning and Evacuation Plan which highlights the flood risk to visitors and details the procedures to follow in the event of a Flood Warning from the EA being issued for the area and that the proposed development is also not considered to increase flood risk within the catchment through a loss of floodplain storage.

This report therefore demonstrates that, in respect of flood risk, the proposed development of the site:

- Is suitable in the location proposed.
- Will be adequately flood resistant and resilient.
- Will not place additional persons at risk of flooding, and will offer a safe means of access and egress.
- Will not increase flood risk elsewhere as a result of the proposed development through the loss of floodplain storage or impedance of flood flows.
- Will put in place measures to ensure surface water is appropriately managed.

As such, the application is concluded to meet the flood risk requirements of the NPPF.

Hydrock Consultants Ltd

7. REFERENCES

Author	Date	Description
Metis Consultants	2021	Strategic Flood Risk Assessment Level 1 - London Borough of Richmond upon Thames https://www.richmond.gov.uk/media/20529/sfra_level_1_report.pdf
Metis Consultants	2021	Further Groundwater Investigations - London Borough of Richmond upon Thames https://www.richmond.gov.uk/media/20819/ldf_further_groundwater_investigations.pdf