Flood Risk Assessment
AEG5249_M20_Manchester_01

Site Address: 60 Bankside Road
Manchester
M20 5GD

UK Experts in Flood Modelling, Flood Risk Assessments, and Surface Water Drainage Strategies

Document Issue Record

Project: Flood Risk Assessment

Prepared for: Joshua Ogden

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Site Location: 60 Bankside Road, Manchester, M20 5GD

Issue	Date	Author	Check	Auth.	Comments
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Summary

Development Description	Existing	Proposed
Development Type	A residential dwelling	A side and rear extension
EA Vulnerability Classification	More Vulnerable	More Vulnerable
Ground Floor Level	Based on EA 1 m LiDAR, the existing ground elevations on site range between approximately 31.9 m Above Ordnance Datum (AOD) and 32.8 m AOD.	The elevations on site will not change.
Level of Sleeping Accommodation	First Floor	First Floor
Surface Water Drainage	N/A[1]	Site to drain as per the existing scenario. Small scale SuDS such as rainwater planters and water butts could be utilised in external areas to provide betterment.
Site Size	450 m^2	No change
Development Size	N/A	<250 m^2 and therefore classified as a minor development in terms of flood risk.
Risk to Development	**Summary**	**Comment**
EA Flood Zone	Flood Zones 2 and 3	
Flood Source	Fluvial	Site is located within Flood Zone 2 and 3.
SFRA Available	Level 1 Strategic Flood Risk Assessment for Greater Manchester - Update (Greater Manchester Combined Authority, 2019) and Manchester City, Salford City and Trafford Councils Level 1 Hybrid SFRA (Manchester, Salford and Trafford, 2010)	
Management Measures	**Summary**	**Comment**

Ground floor level above extreme flood levels	No	Proposed development is shown to be located within the 1 in 100-year plus climate change and 1 in 1000-year events to flood depths 0.23 m and 0.26 m, respectively.
Safe Access/Egress Route	Yes	Safe access/egress is available for both fluvial and pluvial extents via Bankside Road.
Flood Resilient Design	Recommended	Flood resistant and resilient design in line with guidance ser out in 'Improving the Flood Performance of New Buildings' (2007).
Site Drainage Plan	N/A	Site to drain as per the existing scenario. Small scale SuDS such as rainwater planters and water butts could be utilised in external areas to provide betterment.
Flood Warning and Evacuation Plan	N/A	Recommended that occupier monitors Met Office Weather Warnings for extreme weather events.
Offsite Impacts	**Summary**	**Comment**
Displacement of floodwater	None	Minor developments are likely to have a negligible impact on flood risk elsewhere.
Increase in surface run-off generation	N/A	Site to drain as per the existing scenario. Small scale SuDS such as rainwater planters and water butts could be utilised in external areas to provide betterment.
Impact on hydraulic performance of channels	None	The site does not impact any watercourses.

[1] not required for this assessment

[2] data not available.

1. Introduction

1.1. Aegaea were commissioned by Joshua Ogden to undertake a Flood Risk Assessment (FRA) to facilitate a planning application for the proposed development. This FRA has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance.

1.2. This FRA is intended to support a full planning application and as such the level of detail included is commensurate and subject to the nature of the proposals.

Site Overview

1.3. The site of the proposed development is 60 Bankside Road, Manchester, M20 5GD, as shown in Figure 1.

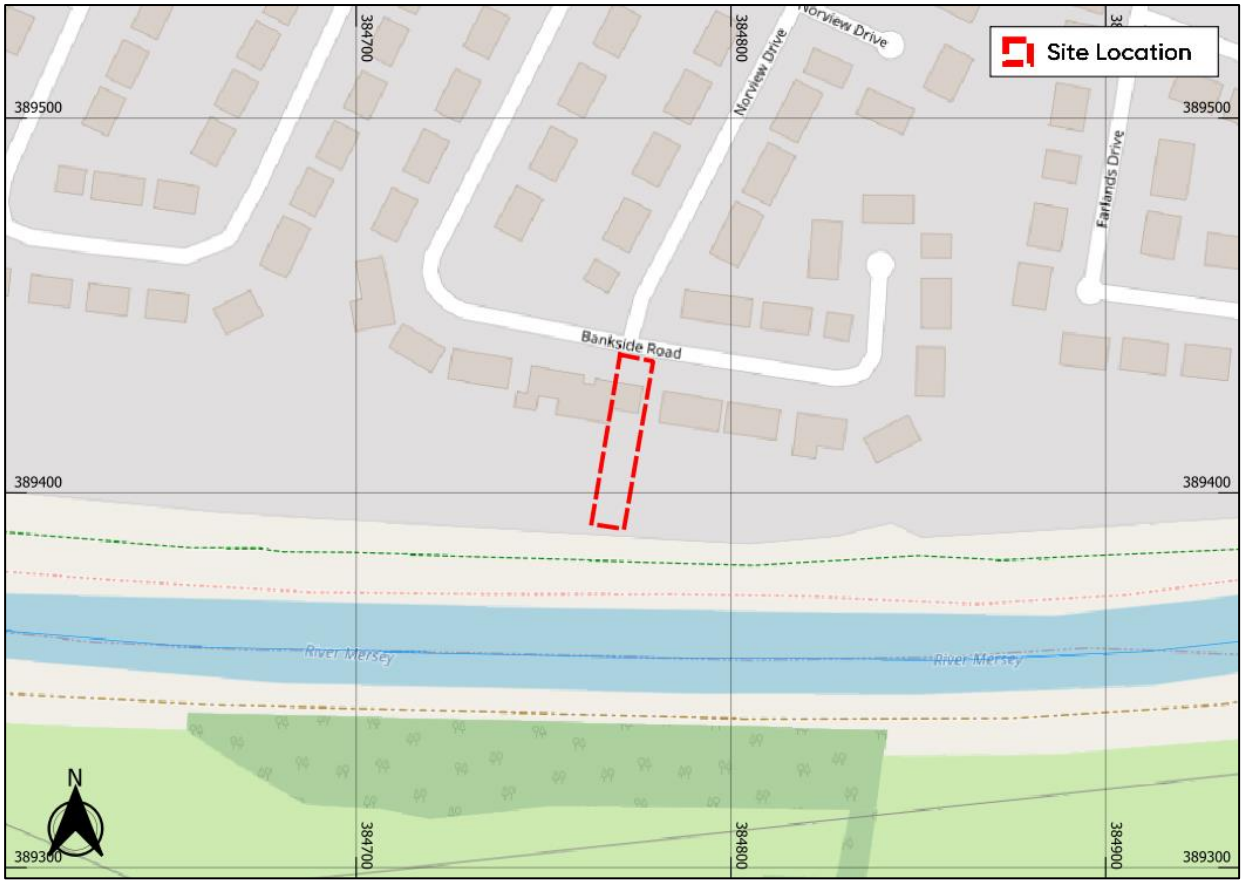

Figure 1: Site Location (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors)

1.4. The proposed development is for the construction of an extension to the existing dwelling on site. It is understood that the proposed development is for the erection of a part-single / part-two storey side and rear extension to form living accommodation. Proposed plans are provided in Appendix A.

1.5. In the absence of a topographical survey, Environment Agency Light Detection and Ranging (LiDAR) data Digital Terrain Model has been used to review the topography of the site. The LiDAR data shows that the ground elevation of the site vary between approximately 31.9 m Above Ordnance Datum (m AOD) and 32.8 m AOD, as shown in Figure 2. The elevation at the proposed development is approximately 32.6 m AOD.

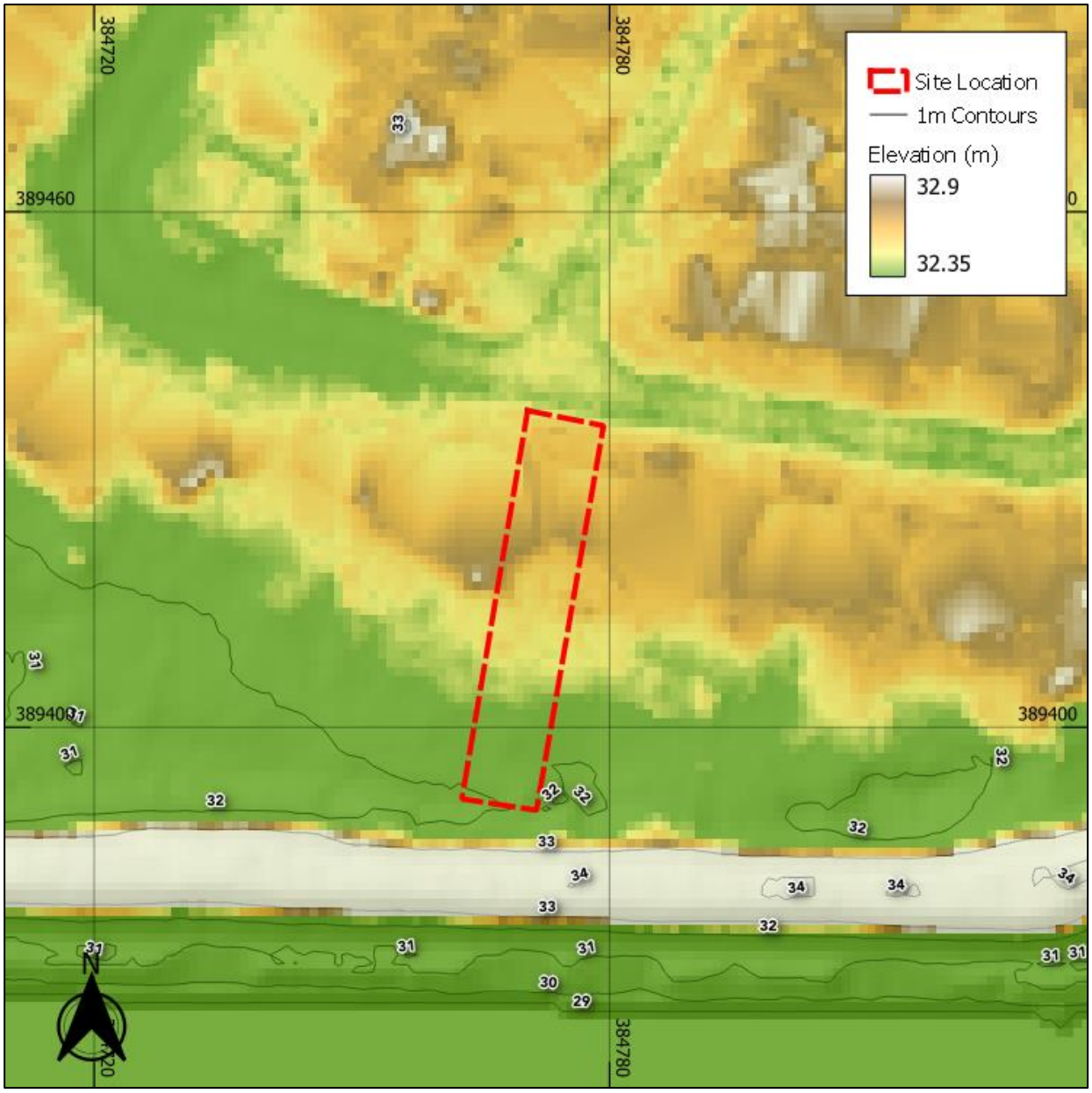

Figure 2: Site Topography (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

1.6. Manchester City Council is the Local Planning Authority (LPA) for the site and also the designated Lead Local Flood Authority (LLFA). The site sits within the Environment Agency's Greater Manchester Merseyside and Cheshire region.

Planning Policy and Guidance

1.7. UK government planning guidance states[1] that an FRA is required for developments which are:

- *in flood zone 2 or 3 including minor development and change of use*
- *more than 1 hectare (ha) in flood zone 1*
- *less than 1 ha in flood zone 1, including a change of use in development type to a more vulnerable class (for example from commercial to residential), where they could be affected by sources of flooding other than rivers and the sea (for example surface water drains, reservoirs)*
- *in an area within flood zone 1 which has critical drainage problems as notified by the Environment Agency*

1.8. The site is located in Flod Zone 3 and as such an FRA is required in accordance with the NPPF.

1.9. The objective of this FRA is to demonstrate that the proposals are acceptable in terms of flood risk. This report summarises the findings of the study and specifically addresses the following issues in the context of the current legislative regime:

- Fluvial/tidal flood risk
- Surface water flood risk
- Risk of flooding from other sources

[1] **https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications#when-you-need-an-assessment**

2. Planning Policy

2.1. Inappropriate development in a flood risk area could pose significant risk in terms of personal safety and damage to property for the occupiers of the development or for people elsewhere. The approach taken in the assessment of flood risk at the planning stage is set out in national, regional, and local planning policy and associated guidance. This section summarises the key policies and guidance relevant to the proposed development.

National Planning Policy Framework (NPPF)

2.2. The National Planning Policy Framework[2] (NPPF) (DLUHC, 2023) which includes UK Government policy on development and flood risk states:

> *165. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.*
>
> *173. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:*
>
> *a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*
>
> *b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*
>
> *c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*

[2] https://www.gov.uk/guidance/national-planning-policy-framework, **last updated Dec 2023**

d) any residual risk can be safely managed; and

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

174. Applications for some minor development and changes of use should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments set out in footnote 59.

2.3. Paragraph 051 of the Flood Risk and Coastal Change Planning Practice Guidance (PPG) states:

Minor development means:

- *minor non-residential extensions (industrial/commercial/leisure etc): extensions with a floorspace not in excess of 250 square metres.*
- *alterations: development that does not increase the size of buildings, e.g. alterations to external appearance.*
- *householder development: for example, sheds, garages, games rooms etc within the curtilage of the existing dwelling,* ***in addition to physical extensions to the existing dwelling itself.*** *This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling (eg subdivision of houses into flats) or any other development with a purpose not incidental to the enjoyment of the dwelling.*

2.4. As such, the proposal would be considered a Minor Development under the PPG.

2.5. Footnote 59 of the NPPF states:

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

2.6. Flood Zones in England are defined as follows:

Table 1: Flood Zone Definitions

Flood Zone	Definition
Zone 1 Low Probability	Land having less than 1 in 1,000 annual probability of river or sea flooding (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.
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.
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). 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)

2.7. An FRA should be appropriate to the scale, nature, and location of the development. It should identify and assess the risk from all sources of flooding to and from the development and demonstrate how any flood risks will be managed over the lifetime of the development.

2.8. An assessment of hydrological impacts should be undertaken, including to surface water runoff and impacts to drainage networks in order to demonstrate how flood risk to others will be managed following development and taking climate change into account.

Local Plan

2.9. The Local Plan prepared by the Local Planning Authority, Manchester City Council, sets out the policies for development in the local area.

2.10. Policy EN 14 Flood Risk outlines the requirements for new development within the area. It states:

> *- In line with the risk-based sequential approach contained within PPS25, development should be directed away from sites at the greatest risk of flooding, and towards sites with little or no risk of flooding; this should take account of all sources of flooding identified in the Manchester-Salford-Trafford Strategic Flood Risk Assessment (SFRA).*
>
> *- In addition to the requirements for site-specific Flood Risk Assessments (FRAs) set out in PPS25, an appropriate FRA will also be required for all development proposals, including changes of use, on sites greater than 0.5ha within Critical Drainage Areas (CDAs) and Canal Hazard Zones identified in the SFRA.*
>
> *- All new development should minimise surface water run-off, including through Sustainable Drainage Systems (SUDS) and the appropriate use of Green Infrastructure. Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach / rates will be required.*
>
> *- The City of Manchester contains many sections of rivers which are culverted or 'hidden'; where these are indicated in the SFRA beneath the proposed development site, further investigation will be required and the development proposal should take this into account; where feasible and appropriate development should seek to open up culverted/hidden rivers to reduce the associated flood risk and danger of collapse, taking advantage of opportunities to enhance biodiversity and Green Infrastructure.*

Sequential and Exception Tests

2.11. The Sequential and Exception Tests are applied in specific cases defined by UK Government policy. Their purpose is to drive development to areas of low flood risk and to support developments which improve flood risk for developments in areas at risk of flooding.

2.12. As per Paragraph 174 of the NPPF:

> *174. Applications for some **minor development** and changes of use should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments set out in footnote 59.*

2.13. As such, given the proposed development is classified as a minor development, the proposed minor development is not required to be subject to the sequential or exception tests.

3. Consultation and Review

Consultation

3.1. Aegaea requested flood data for the area and received the Upper Mersey (2017) model. The proposed development lies within the model domain and has been analysed in Section 4 of this report. Consultation with the EA is provided in Appendix B.

Documents and Online Mapping

3.2. Local Governments and Lead Local Flood Authorities provide documents which contain data and policies on flood risk and new development in their areas. These documents are introduced and briefly summarised below. For the purposes of this FRA, these documents have been reviewed for relevant information and any relevant data is discussed within the appropriate sub heading of this report.

3.3. The following sources of information have been reviewed for this assessment:

- Flood Map for Planning on the Environment Agency website *https://flood-map-for-planning.service.gov.uk/*
- Long Term Flood Risk Information on the Environment Agency website *https://www.gov.uk/check-long-term-flood-risk*
- National Planning Policy Framework (NPPF) (Department for Levelling Up, Housing and Communities, 2023)
- Planning Practice Guidance - Flood Risk and Coastal Change (Department for Levelling Up, Housing and Communities, 2022)
- Geoindex Onshore (British Geological Survey, 2023)
- Core Strategy 2012-2027 (Manchester City Council, 2012)[4]

[4] **https://www.manchester.gov.uk/info/200074/planning/6573/core_strategy_2012-2027**

- Preliminary Flood Risk Assessment (Manchester City Council, 2011)[5] and Preliminary Flood Risk Assessment Addendum (Manchester City Council, 2017)[6]
- Level 1 Strategic Flood Risk Assessment for Greater Manchester - Update (Greater Manchester Combined Authority, 2019)[7]
- Local Flood Risk Management Strategy (Manchester City Council, 2014)[8]

Preliminary Flood Risk Assessment (PFRA)

3.4. The PFRA, published in 2011 and 2017, is a high-level appraisal of flood risk across Lead Local Flood Authority Manchester City Council. The flood risk from all sources, including fluvial, surface water, groundwater, and surcharged sewers is evaluated. It is the basis upon which the Local Flood Risk Management Strategy is produced.

3.5. The PFRA summarises historical flood incidents in Manchester City Council. The site is not recorded as having been affected by any flood event.

Strategic Flood Risk Assessment (SFRA)

3.6. The SFRA, published in 2010 and 2019, provides the evidence base for the Local Planning Authority Manchester City Council Local Plan and guidance for consideration when determining planning applications. The SFRA seeks to place new development into areas of lower flood risk taking into account current flood risk, future flood risk, and the effect a proposed development would have on the risk of flooding.

3.7. The SFRA mapping provided by Manchester City Council has been used throughout production of this report as a source of information, particularly pertaining to historical flood incidents.

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[5] **https://www.manchester.gov.uk/egov_downloads/MCC_PFRA.pdf**

[6] **https://assets.publishing.service.gov.uk/media/5acc8114ed915d5a9323b5df/PFRA_Manchester_City_Council_2017.pdf**

[7] **https://www.greatermanchester-ca.gov.uk/GMCAFiles/PFE/Supporting%20documents/04%20Sustainable%20and%20Resilient%20Places/04.02.01%20GM%20Strategic%20Flood%20Risk%20Assessment%20Level%201%20Report.pdf**

[8] **https://www.manchester.gov.uk/info/500207/planning_and_regeneration/5905/manchesters_local_flood_risk_management_strategy_lfrms/2**

Local Flood Risk Management Strategy (LFRMS)

3.8. The Local Flood Risk Management Strategy sets out roles and responsibilities for flood risk management, assesses the risk of flooding in the area, where funding can be found to manage flood risk, and the policies, objectives, and actions of the Lead Local Flood Authority.

3.9. The Manchester City Council LFRMS is used within this report to identify any flood management infrastructure and historical incidences of flooding.

4. Sources of Flood Risk

Fluvial

4.1. Flooding from watercourses arises when flows exceed the capacity of the channel, or where a restrictive structure is encountered, resulting in water overtopping the banks into the floodplain.

4.2. The site is located within Flood Zones 3 and 2 (Figure 3). Flood Zone 3 denotes a risk of flooding from fluvial sources greater than 1 in 100 (1%) annual probability.

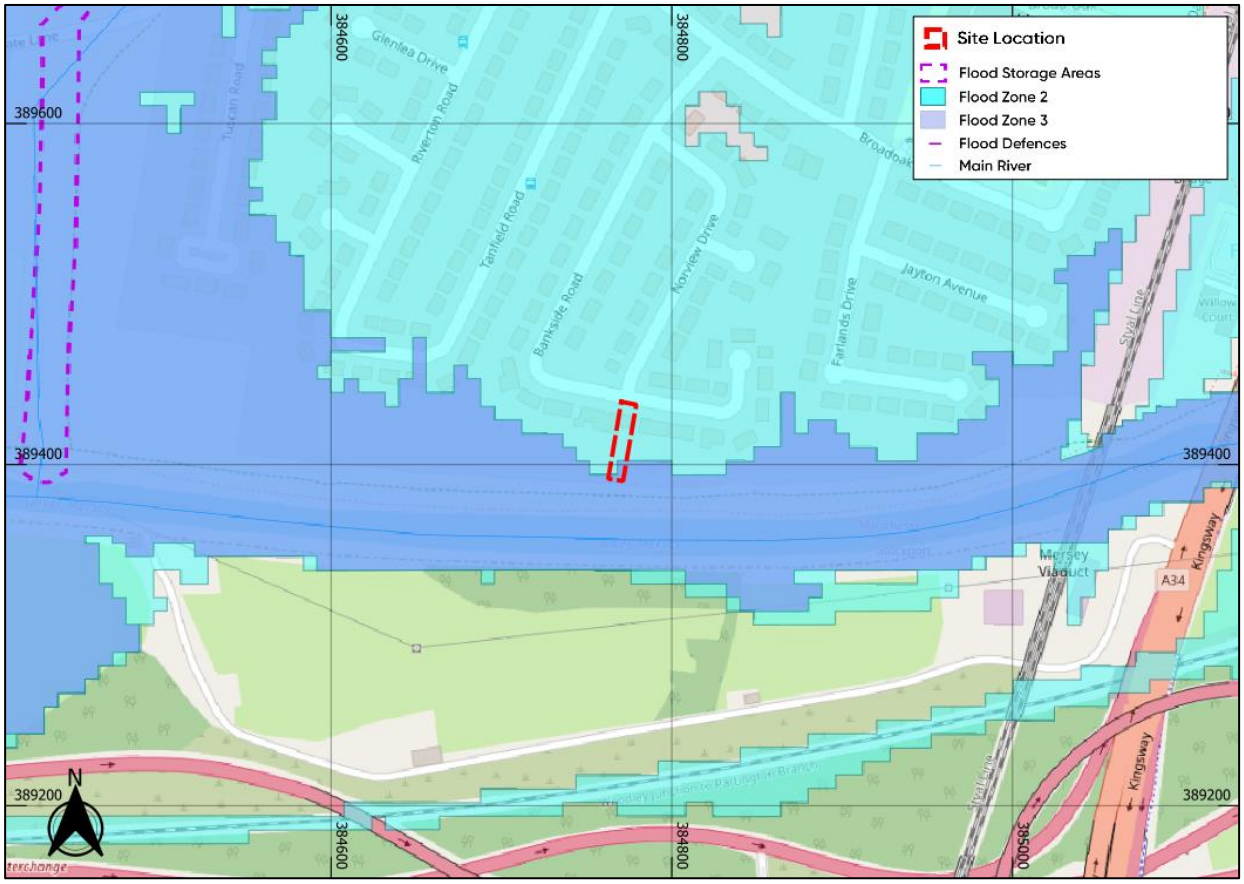


Figure 3: EA Flood Map for Planning (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

Main Rivers and Ordinary Watercourses

4.3. The nearest main river, River Mersey, is located approximately 22 m south of the site.

4.4. There are no other watercourses in the vicinity of the site.

Historical Fluvial Flooding

4.5. The EA Recorded and Historical outlines map shows the site has been previously flooded (Figure 4) in 1961, no further details regarding the flooding are provided. It is believed that since the flood event, flood defences are now present along the River Mersey.

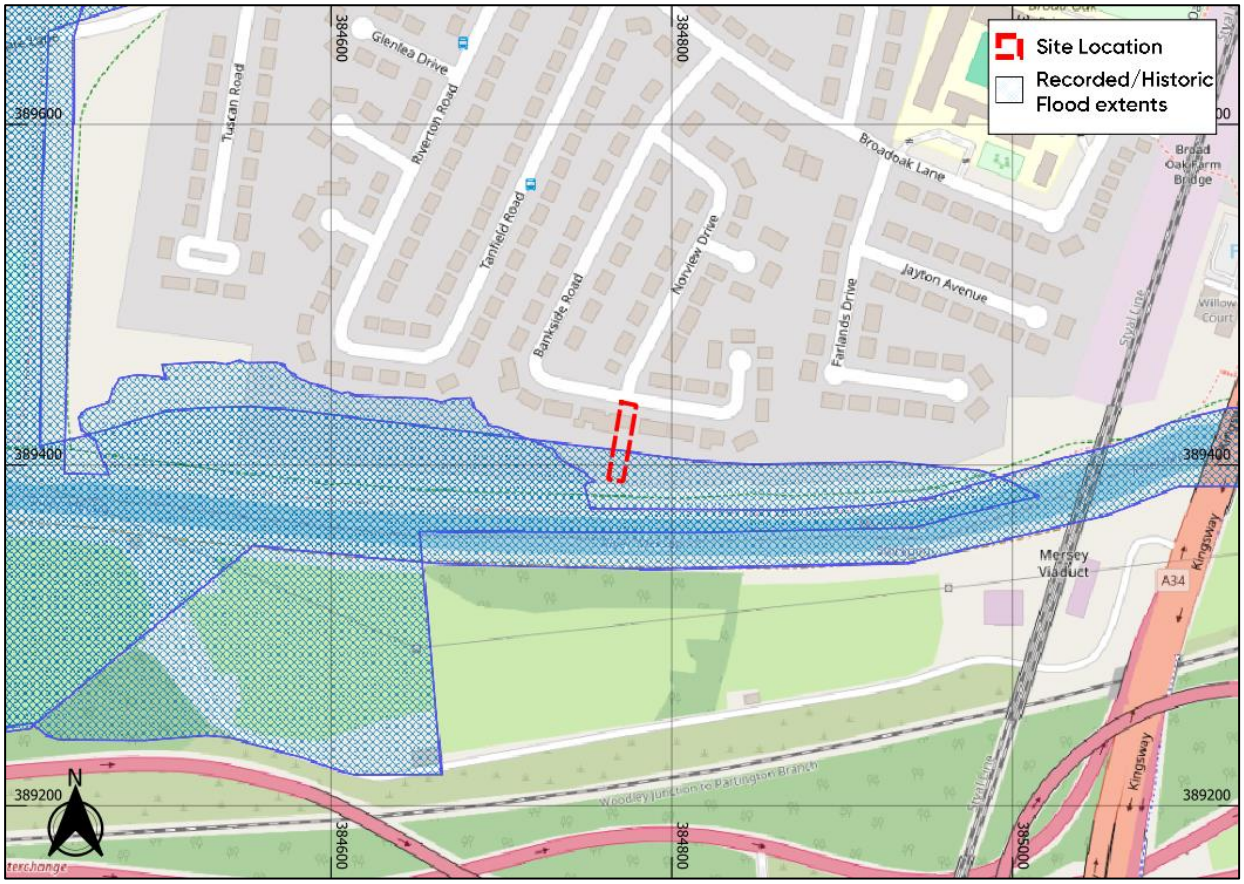


Figure 4: EA Historic Flood Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

Flood defences

4.6. The site is currently protected by flood defences, embankment, which is designed to a 1 in 50 flood event. The downstream crest level is 32.93 m AOD, and the upstream crest level is 34.03 m AOD. The crest level of the defences is approximately 2.13 m above the minimum elevation on site.

Environment Agency - Upper River Mersey (2017) Model

4.7. Aegaea has been provided with Product data for this area by the Environment Agency which has been used to inform this FRA. This information is based on the Upper River Mersey (2017) model and is understood to be the best available information for this area.

4.8. The 2017 model domain covers the River Mersey and provides flood levels for a number of nodes located along the river. Both undefended and defended scenarios were provided, given the presence of flood defences, only the defended scenarios have been analysed to provide the most realistic scenario. In addition, a number of climate change scenarios have been provided.

4.9. The site is located within the Upper Mersey Management Catchment. The proposed development is for an extension to a residential dwelling with an anticipated lifetime of a minimum of 100 years.

4.10. Guidance suggests that 'More Vulnerable' developments in Flood Zone 2 and 3 should utilise the 'central' climate change allowance. The increase in peak river flow for the central 2080s scenario is 41%. The climate change scenarios provide include +30%, +35% and +70%.

4.11. The nearest flood level node to the proposed development is node 7, as shown in Figure 5.

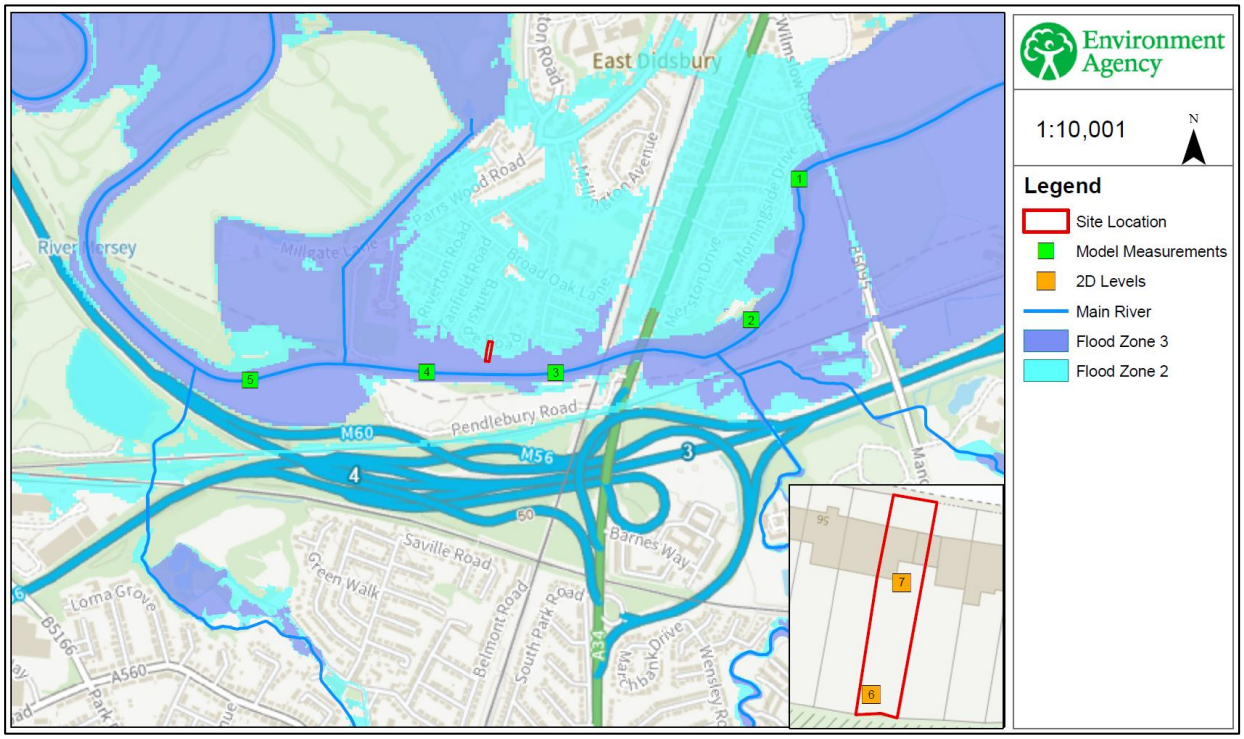


Figure 5: EA Upper River Mersey flood Level nodes. Source EA.

4.12. Based on the EA data provided, the proposed development would not be affected up to and including the 1 in 100-year flood event.

4.13. The flood levels at the node 7 for the 1 in 100-year +35% climate change (+35% CC) and 1 in 100-year +70% CC are 32.83 m AOD and 32.81 m AOD, respectively. The 1 in 100-year +35 CC has a greater flood level than the 1 in 100-year +70% CC event therefore, given the similarly in flood level, a flood level of 32.83 m AOD is deemed appropriate for the 1 in 100-year +41% CC event.

4.14. The in-channel flood levels are significantly greater than those on site (nodes 6 and 7) and as the site is not affected during the 1 in 100-year event, a 41% climate change uplift cannot be extrapolated from the 1 in 100-year event and 1 in 100-year +35%CC event.

4.15. The 1 in 100-year +41%CC event flood level is 32.83 m AOD and is shown to affect the proposed development to a depth of 0.23 m based on the proposed developments minimum elevation (32.6 m AOD).

4.16. The 1 in 1000-year event flood level is 32.86 m AOD and is shown to affect the proposed development to a depth of 0.26 m based on the proposed developments elevation (32.6 m AOD).

4.17. Access and egress may be affected during the 1 in 100-year +41%CC event therefore safe refugee at the highest floor (first floor) available should be sort in an event.

Summary

4.18. Based on the analysis above, the flood risk to the site from fluvial sources is considered to be moderate.

4.19. Mitigation measures are provided in Section 5.

Tidal

4.20. Tidal flooding occurs when a high tide and high winds combine to elevate sea levels. An area behind coastal flood defences can still flood if waves overtop the defences or break through them. Tidal flooding can also occur a long way from the coast by raising river levels. Water may overtop the river bank or river defences when tide levels are high.

4.21. The site is a significant distance from any tidal source and above the anticipated extreme tidal levels, even when considering the impacts of climate change.

4.22. There is no record of historical tidal or sea flooding.

4.23. The risk of flooding from tidal sources is considered to be low.

Canals

4.24. The Canal and River Trust (CRT) generally maintains canal levels using reservoirs, feeders, and boreholes and manages water levels by transferring it within the canal system.

4.25. The site is not located within the vicinity of any canals as per the Canal and River Trust network map[9].

4.26. The risk of flooding to this site from canals is considered to be low.

Pluvial

4.27. Pluvial flooding can occur during prolonged or intense storm events when the infiltration potential of soils, or the capacity of drainage infrastructure is overwhelmed leading to the accumulation of surface water and the generation of overland flow routes.

4.28. Annual surface water flood risk is labelled by the EA as:

- 'High Risk'; >3.3% AEP (annual probability greater than 1 in 30).
- 'Medium Risk'; 1.1% to 3.3% AEP (annual probability between 1 in 100 and 1 in 30).
- 'Low Risk'; 0.1% to 1% AEP (annual probability between 1 in 1000 and 1 in 100).
- 'Very Low Risk'; <0.1% AEP (annual probability less than 1 in 1000).

4.29. Examination of the EA's Flood Risk from Surface Water mapping for High Risk, Medium Risk, and Low Risk AEP flood events shows the majority of the site is located outside the flood extents except the northern boundary of the site, which is located within the low surface water event, as shown in Figure 6.

[9] **https://canalrivertrust.org.uk/canals-and-rivers**

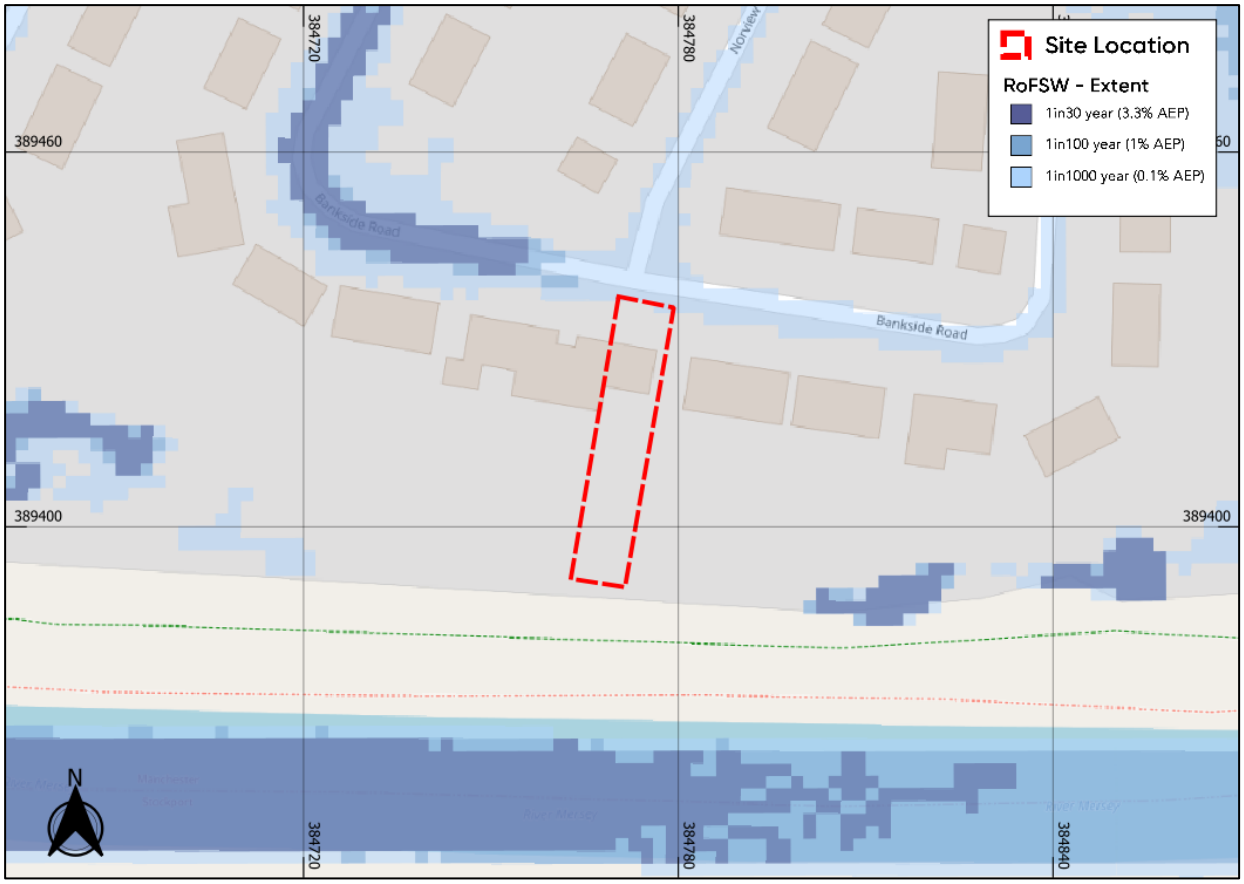


Figure 6: EA Surface Water Flood Risk Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

4.30. In the modelled 1 in 1000-year event, the majority of the site is located outside of the flood extents except the northern site boundary which has a maximum flood depth of 0.6 m, as shown in Figure 6. The proposed development is located outside of the flood extents.

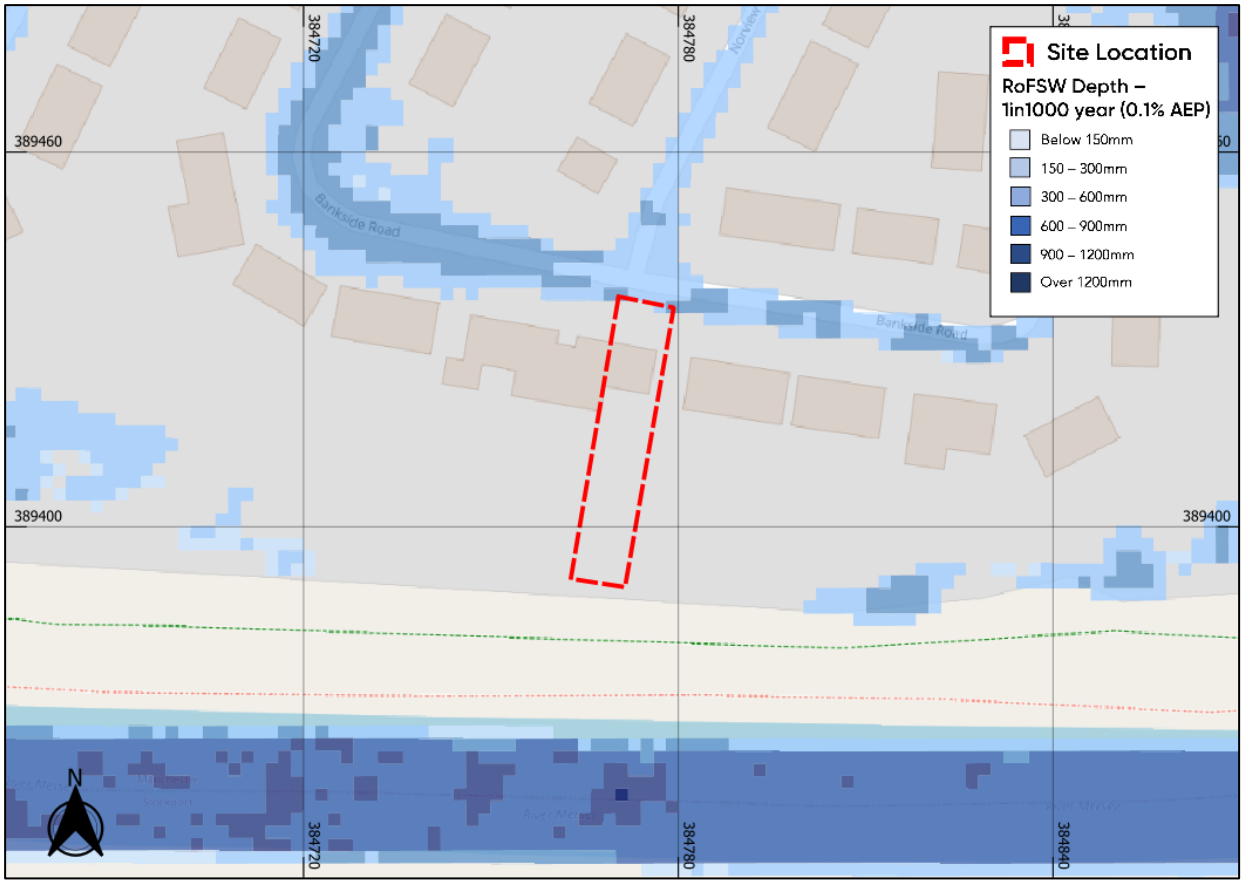


Figure 7: EA 1 in 1000-year flood depths. (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). ©https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

4.31. The EA hazard rating denoted to the flood extent on Bankside Road is shown to be affected, as shown in Figure 8. The EA hazard rating to the flood extent is shown to be 'moderate' (0.75 – 1.25) at the location along the site access/egress. Access and egress to the site via Bankside Road is likely however in the event it is not, safe refugee can be sort in the dwelling on site which is shown to be unaffected during a 1 in 1000-year event.

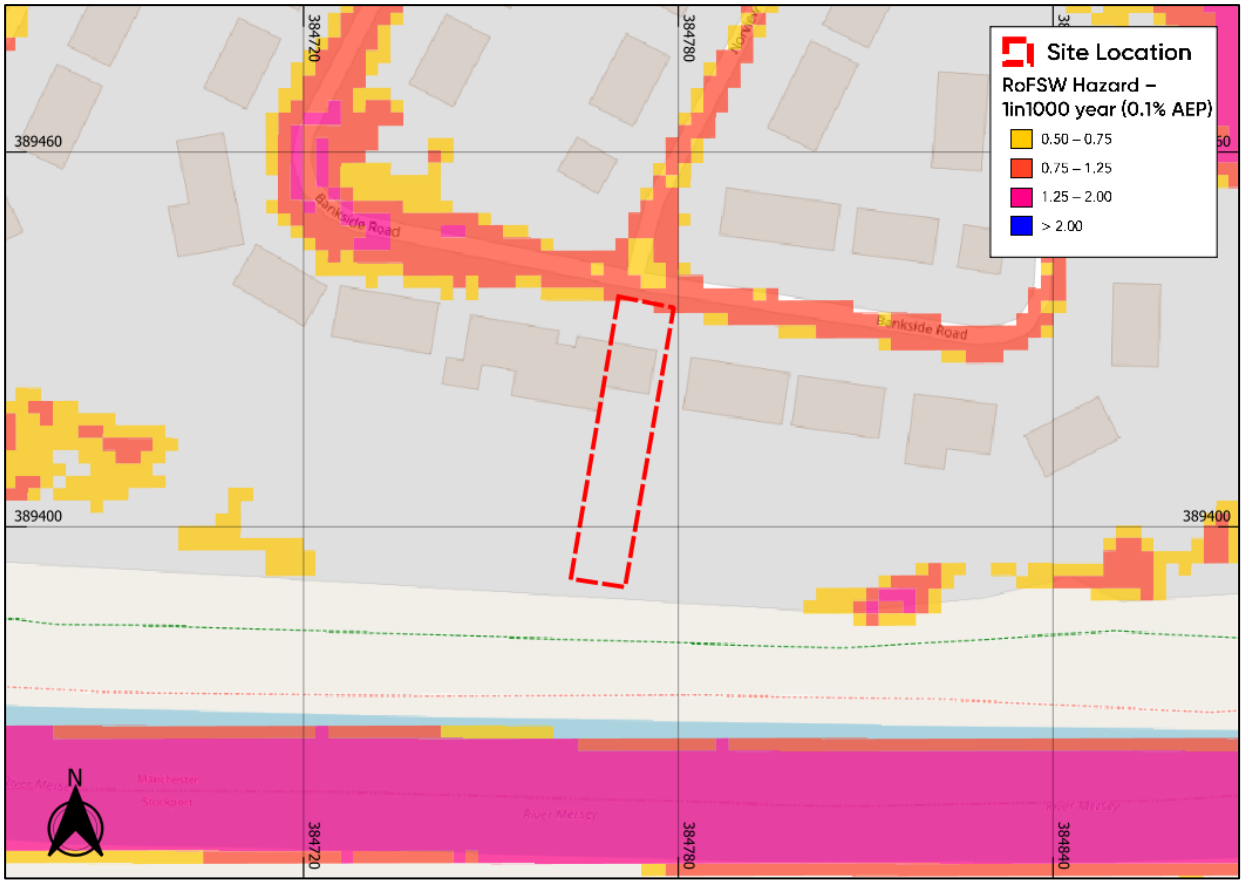


Figure 8: EA hazard mapping 1 in 1000-year event. (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). ©https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

4.32. The SFRA provides historical flood records however the basemap resolution is very coarse and the site's location cannot be confirmed in relation to historical events.

4.33. Based on the above, the flood risk to the site from pluvial sources is considered to be low.

Reservoirs

4.34. Large waterbodies or reservoirs that have walls built above the surrounding ground level pose a risk of flooding. Walls could fail due to old age, accident, or because excess flood water has been added to the reservoir. Although a breach is unlikely, the consequences would be significant, leading to rapid inundation of the downstream floodplain.

4.35. According to the EA's Flood Risk from Reservoirs mapping the site is at risk of flooding in the event of a breach at multiple reservoirs, as shown in Figure 7. The worst reservoir failure model is a 'dry day' scenario. This scenario predicts the flooding that would occur if the dam or reservoir

failed when rivers are at normal levels. meaning that it could be caused by reservoir walls failing due to old age, accident, or because excess flood water has been added to the reservoir.

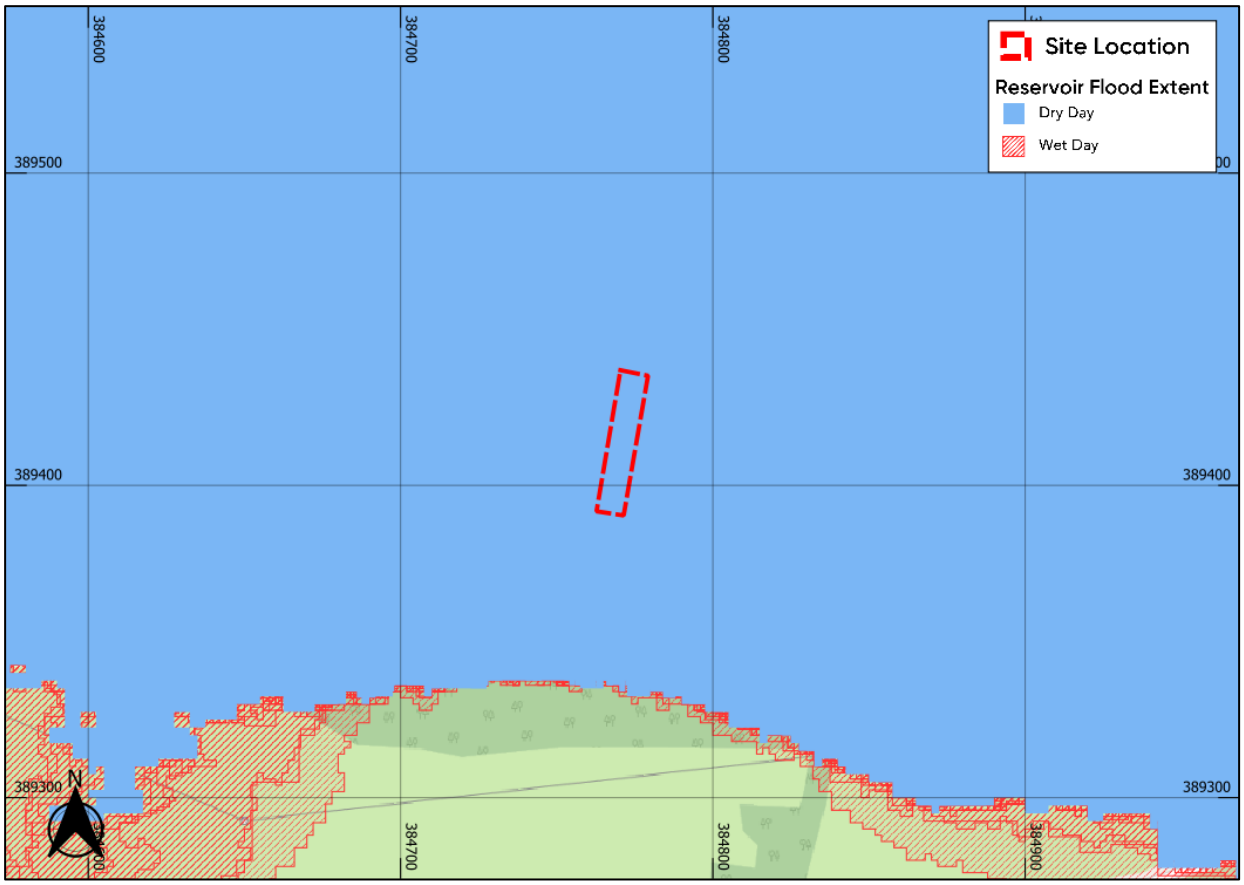


Figure 9: EA Reservoir Flood Risk Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). ©https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

4.36. All large reservoirs must be inspected and supervised by reservoir panel engineers as detailed by the Reservoirs Act 1975 in England and Wales. The EA are responsible to ensure that reservoirs are regularly inspected, and essential safety work carried out. As reservoirs are highly managed the maximum flood extent provided in the EA Risk of Flooding from Reservoirs mapping is considered a worst-case scenario.

4.37. As reservoir flooding is unlikely and the modelled flood depths are based on the worst-case scenario, the flood risk to the site from reservoirs is considered to be low.

Groundwater

4.38. Groundwater flooding occurs in areas where underlying geology is permeable and water can rise within the strata sufficiently to breach the surface.

4.39. The British Geological Survey's (BGS) mapping shows superficial deposits underlying the site of River Terrace Deposits comprising of sand and gravel. The bedrock underlying the site is Wilmslow Sandstone Formation comprising of sandstone.

4.40. The nearest BGS borehole (reference: SJ88NW151) is located 110 m southeast of the site. The borehole identifies clay-based strata to a depth 2 m, followed by 0.4 m of sand and 0.3 of sandstone. An additional borehole was undertaken which identified sandstone to a depth of 6 m below ground level. The first borehole did not encounter ground water whilst the additional borehole did at a depth of 4.8 m below ground level.

4.41. The SFRA does not highlight any groundwater flood risk to the area the site is located within.

4.42. As the development proposals do not include any proposed basements, nor any subterranean elements therefore the flood risk to the site from groundwater is considered to be low.

Sewers

4.43. Foul or surface water sewers can be a cause of flooding if the drainage network becomes overwhelmed, either by blockage or due to local development beyond the designed capabilities of the drainage system.

4.44. The SFRA provides mapping of historical sewer flood incident records kept by the local authority. The base mapping resolution is very coarse so the exact location of the site can not be confirmed however based on the historical map, no sewer incidents are located within the vicinity of the site.

4.45. The flood risk to the site from sewers is considered to be low.

5. Flood Risk Mitigation

Fluvial

5.1. The site is shown to be located within Flood Zone 2 and 3. The site is shown to be affected during the 1 in 100-year plus 41% climate change event and 1 in 1000-year event to flood depths 0.23 m and 0.26 m, respectively.

5.2. Given the risk present, it is recommended that appropriate flood resilience and resistance measures should be incorporated as a part of the development proposals (where applicable), in accordance with the CLG Report, Improving the Flood Performance of New Buildings - Flood Resilient Construction (2007) including measures such as the below:

- *Flooring to be constructed using solid concrete to prevent water ingress.*
- *Raised wiring and power outlets at ground floor level.*
- *Air brick covers to be installed (if applicable).*
- *Non-return valves should be installed on all new drainage.*
- *All new plumbing insulation to be of closed cell design.*
- *Finish shall be water resistant render with lime-based plaster finish, hydraulic lime coating or ceramic tiles. Plasterboard placed horizontally as a sacrificial material, not vertically.*
- *Insulation to be low adsorption board or semi rigid self-draining wool bats.*

5.3. At the rear of the dwelling, demountable flood barriers could be installed upon the receipt of a flood warnings to help prevent water ingress into the dwelling.

5.4. The occupants of the dwelling should sign up to the EA flood warning service. Further details regarding flood warnings are below.

Pluvial, Reservoirs, Groundwater and Sewers

5.5. Flood risk from other sources is deemed to be low, therefore mitigation is not required.

Increase to Flood Risk Elsewhere

5.6. It is understood that the proposed development is for the erection of a part-single / part-two storey side and rear extension to form living accommodation. As such, the proposal constitutes a Minor Development under the NPPF.

5.7. Paragraph 051 of the Flood Risk and Coastal Change Planning Practice Guidance (PPG) states:

> *Minor developments are unlikely to raise significant flood issues unless:*
>
> - *they would have an adverse effect on a watercourse, floodplain or its flood defences;*
> - *they would impede access to flood defence and management facilities, or;*
> - *where the cumulative impact of such developments would have a significant effect on local flood storage capacity or flood flows.*

5.8. As such, the proposed development in isolation should have a negligible impact on flood risk elsewhere.

Flood Warnings

5.9. The site is located within the 'River Mersey at East Didsbury from Tuscan Road to Wilmslow Road' flood warning area. This service allows site owners to register an address along with contact details so that, in the event of a flood being forecast, they are sent an alert. As a further precaution and risk reduction, the owner of the site should sign up.

5.10. Flood warnings/alerts can be enforced at any time of the day or night. Signing up for this service provides site owners some notice before a flood event. The amount of time afforded before a flood occurs depends on the site-specific location (e.g. proximity to the source of flooding, topography of the surrounding area) and the flood mechanism (e.g. bank over topping versus a breach event). Flood alerts and warnings provide site managers with time to take necessary action, e.g. communication of the risk of flooding to occupants/employees etc, evacuation of occupants offsite or to a safe level, removal of valuable items out of reach of flooding and the mounting of site-specific flood defences.

6. Conclusions

6.1. This FRA has been undertaken with reference to the requirements of NPPF and Planning Practice Guidance with respect to the development at 60 Bankside Road, Manchester, M20 5GD. It has been written to support a planning application and prepared with due consideration to the nature of the proposed development to provide the appropriate level of detail.

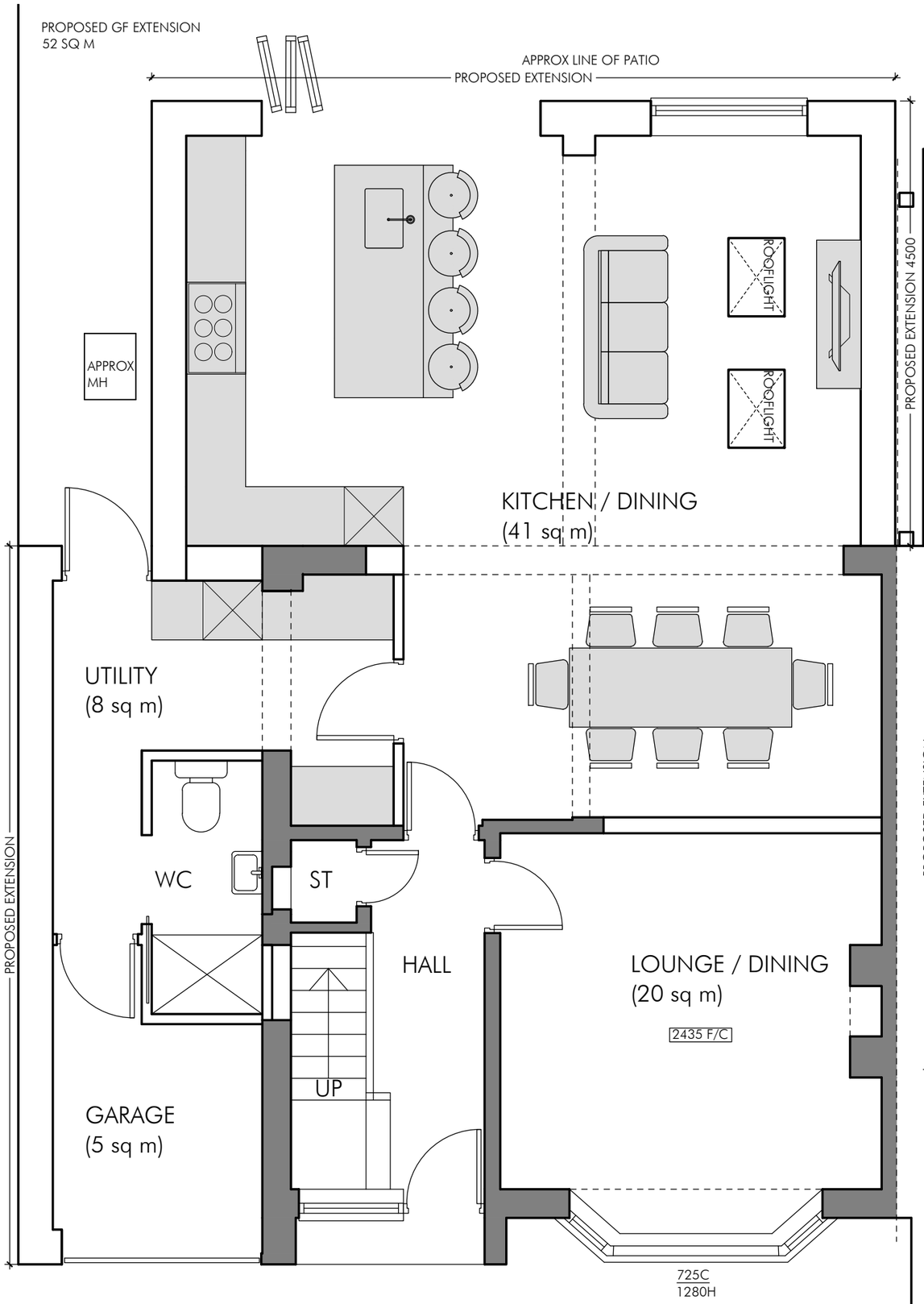
6.2. An assessment of the risk of flooding from all sources has been undertaken and is summarised in the table below:

Source of Flooding	Flood Risk Summary
Fluvial	The site is located within Flood Zone 2 and 3. The 1 in 100-year +41%CC event flood level is 32.83 m AOD and is shown to affect the proposed development to a depth of 0.23 m based on the proposed developments elevation (32.6 m AOD). The 1 in 1000-year event flood level is 32.86 m AOD and is shown to affect the proposed development to a depth of 0.26 m based on the proposed developments elevation (32.6 m AOD). Access and egress may be affected during the 1 in 100-year +40CC event therefore safe refugee at the highest floor (first floor) available should be sort in an event. Mitigation measures for the proposed development are provided in Section 5.
Pluvial Tidal Reservoirs Groundwater Sewers Canals	The site is considered to be at low risk from other sources.

6.3. The FRA supports the planning application and demonstrates that there is an acceptable level of flood risk to the site if the mitigation strategies recommended are implemented in the scheme. The development does not increase flood risk off site or to the wider area.

6.4. This Flood Risk Assessment should be submitted as part of the planning application to satisfy the requirements under NPPF.

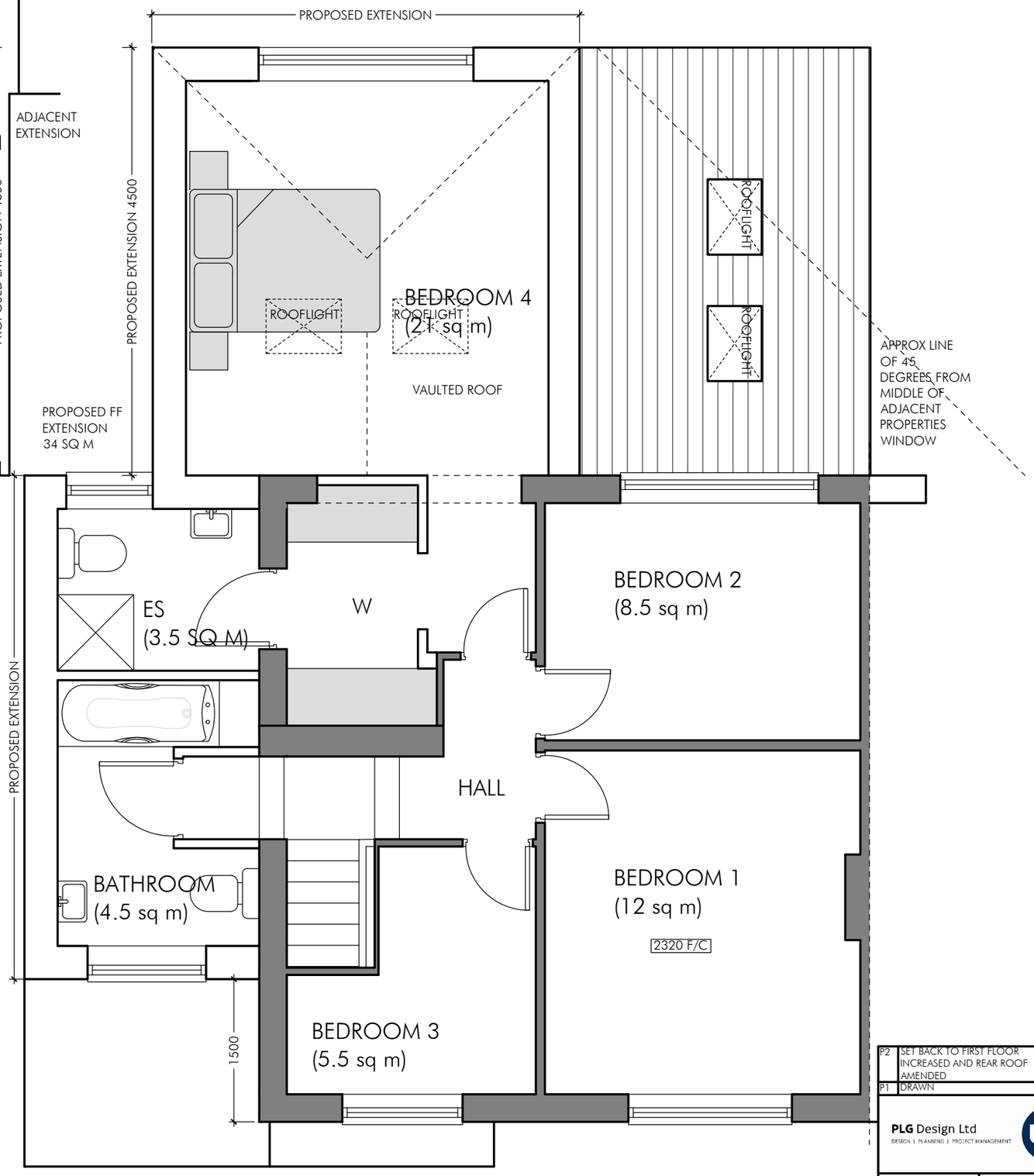
Appendix A - Development Proposals



PROPOSED GF PLAN

0 1m 2m 3m 4m 5m

SCALE 1:50 IN METRES



PROPOSED FIRST FLOOR PLAN

P2	SET BACK TO FIRST FLOOR INCREASED AND REAR ROOF AMENDED	22.04.24
P1	DRAWN	04.03.24

PLG Design Ltd
DESIGN | PLANNING | PROJECT MANAGEMENT

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Unit 11 National Trading Estate,
Bramhall Moor Lane,
Hazel Grove,
Stockport , SK7 5AA

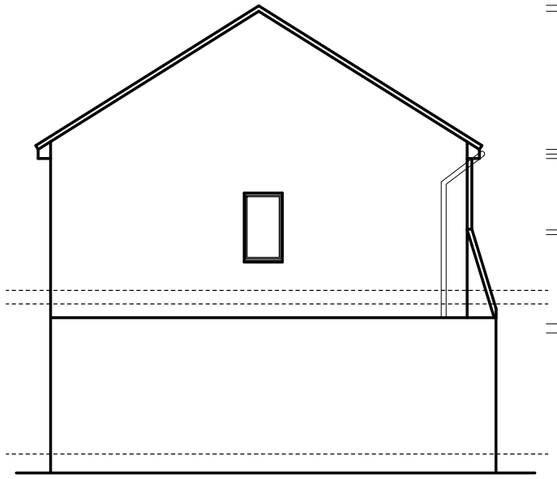
Client: Mr J Ogden
Address: 60 Bankside Road, Didsbury M20 5GD
Title: PROPOSED FLOOR PLANS

Scale: 1:50 @ A3

Job Number	Drawing Number	Issue
23213	PL02	P2

EXISTING ELEVATIONS

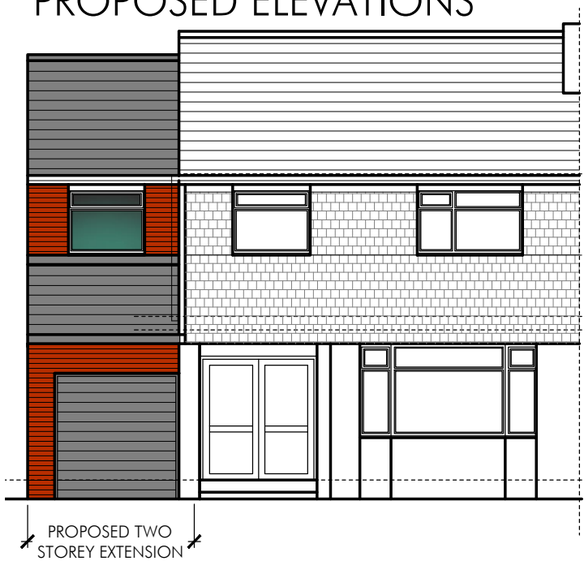
FRONT ELEVATION



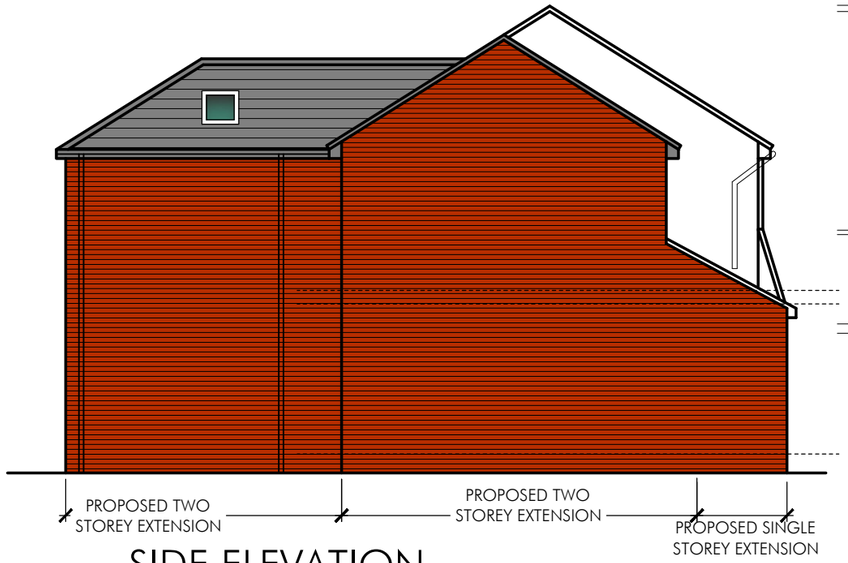
SIDE ELEVATION

REAR ELEVATION

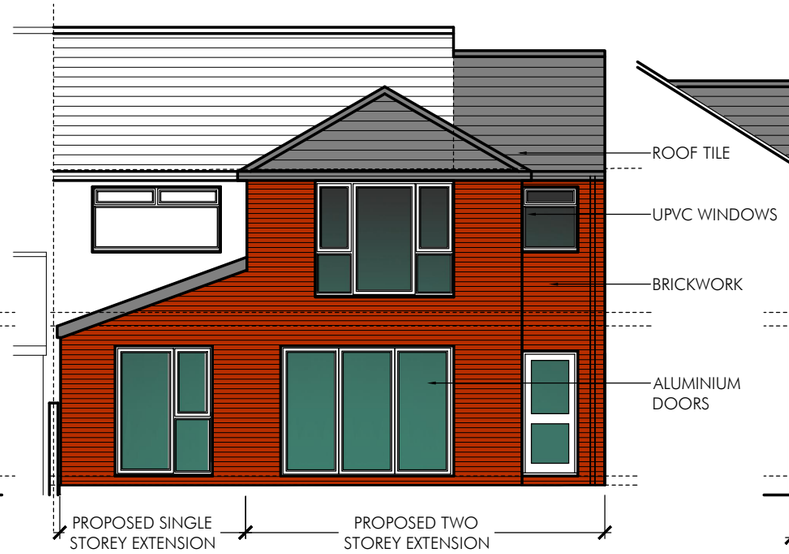
PROPOSED ELEVATIONS



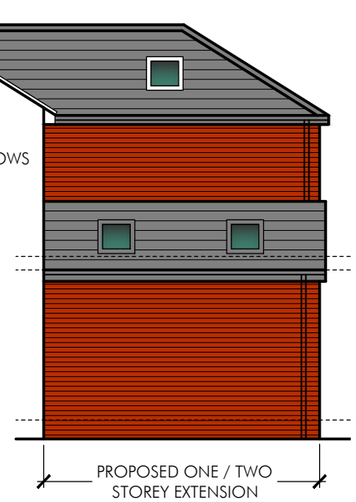
FRONT ELEVATION



SIDE ELEVATION



REAR ELEVATION



SIDE ELEVATION

0 1m 2m 3m 4m 5m 10m

SCALE 1:100 IN METRES

P2	SET BACK TO FIRST FLOOR INCREASED AND REAR ROOF AMENDED	22.04.24
P1	DRAWN	04.03.24

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Unit 11 National Trading Estate,
Bramhall Moor Lane,
Hazel Grove,
Stockport , SK7 5AA

Client: Mr J Ogden

Address: 60 Bankside Road, Didsbury
M20 5GD

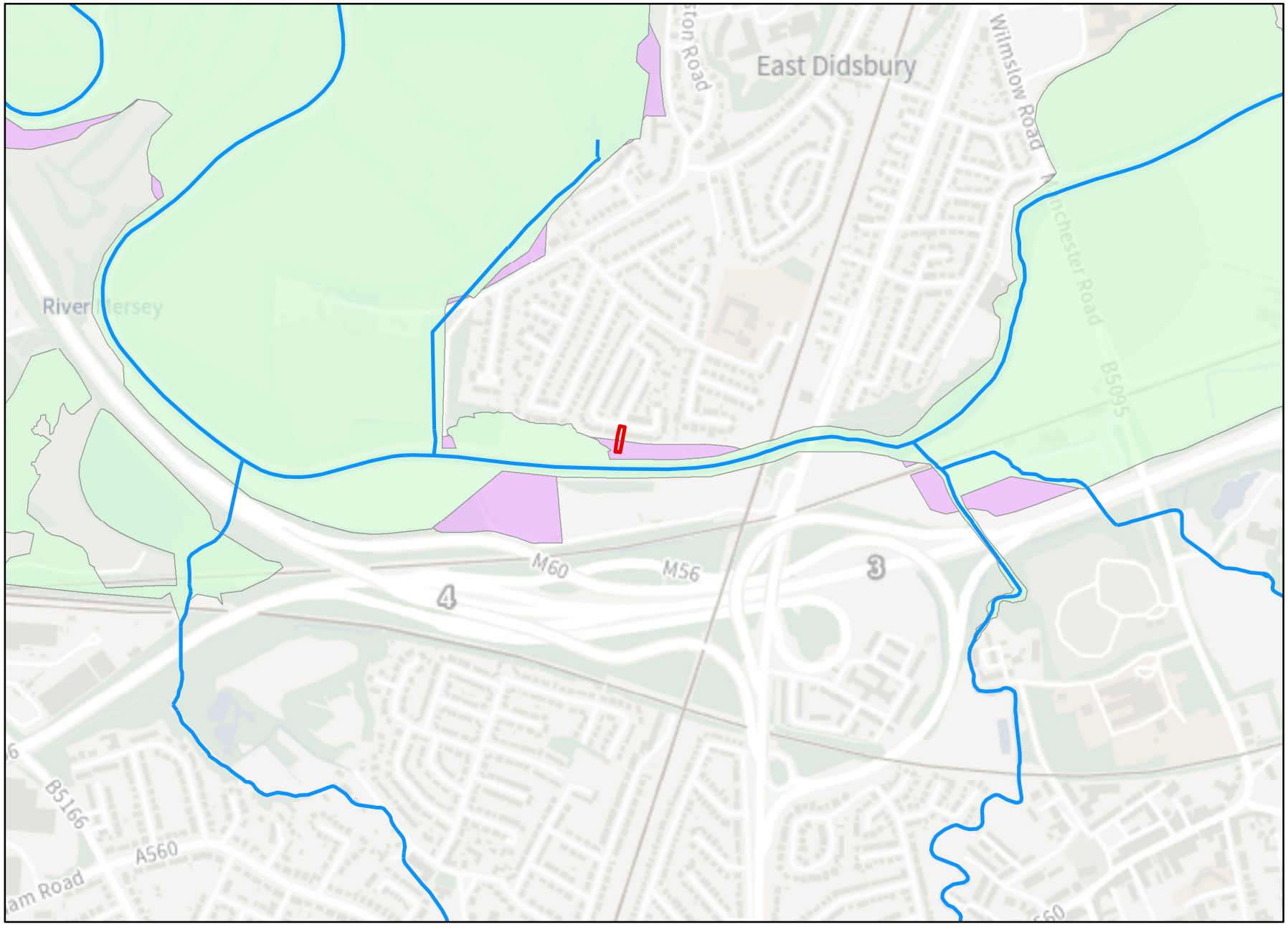
Title: EXISTING AND PROPOSED ELEVATIONS

Scale: 1:100 @ A3

Job Number	Drawing Number	Issue
23213	PL03	P2

Appendix B - Consultation

Recorded Flood Outline Flood Map Centred on Bankside Road, Manchester, M20 5GD.
Created 13/06/2024 [GMMC363017AB]



Environment Agency

1:10,001

N

Legend

Site Location

Main River

Recorded Flood Outlines

Start Date

20/01/2021

01/01/1964

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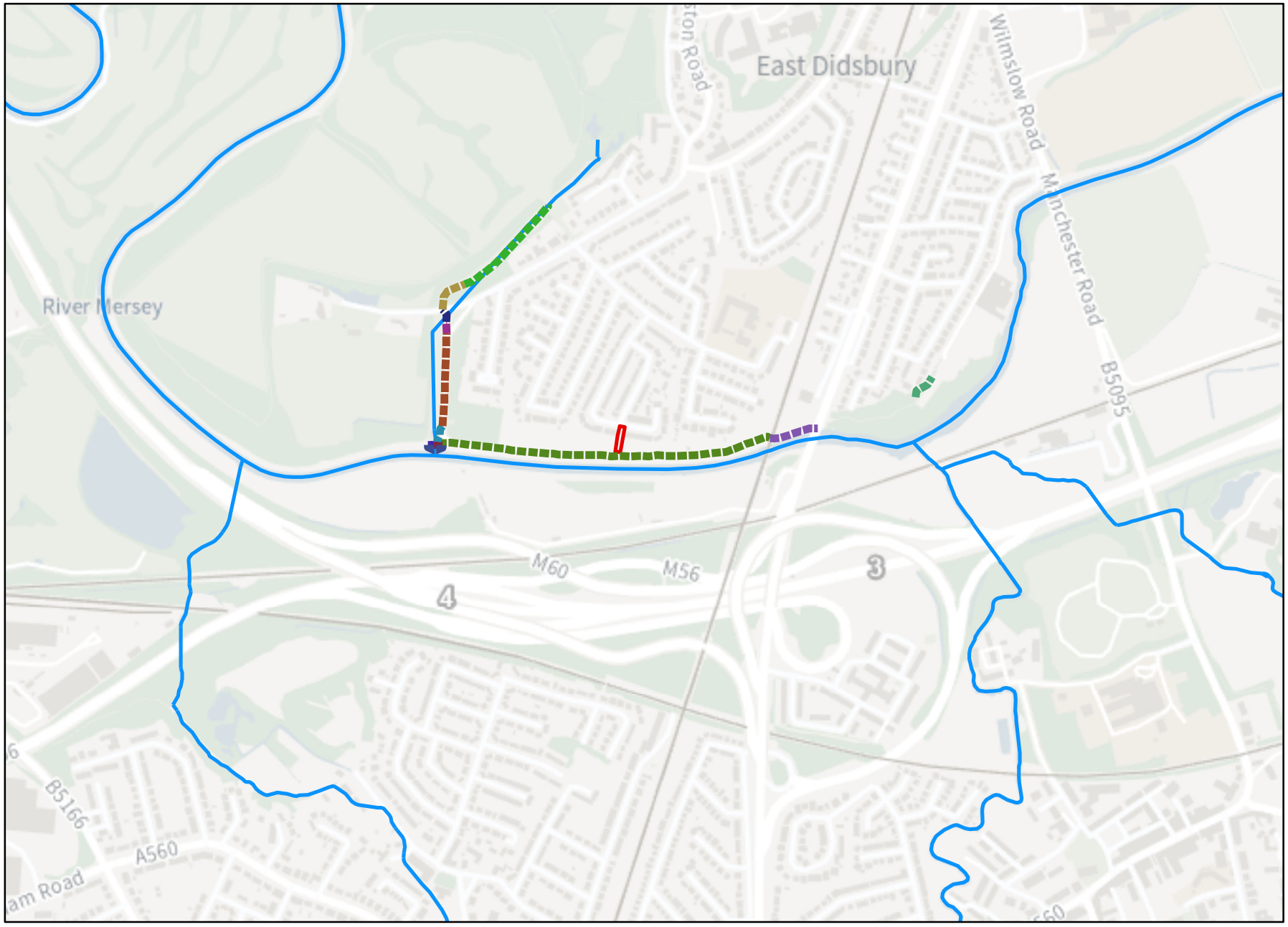
Flood Defence Flood Map Centred on Bankside Road, Manchester, M20 5GD.
Created 13/06/2024 [GMMC363017AB]



Environment Agency

1:10,001

N

Legend

Site Location

Main River

Defences

Asset ID

- 122331
- 122332
- 144885
- 146503
- 146504
- 146505
- 146508
- 173224
- 173225
- 178849
- 183314
- 71380

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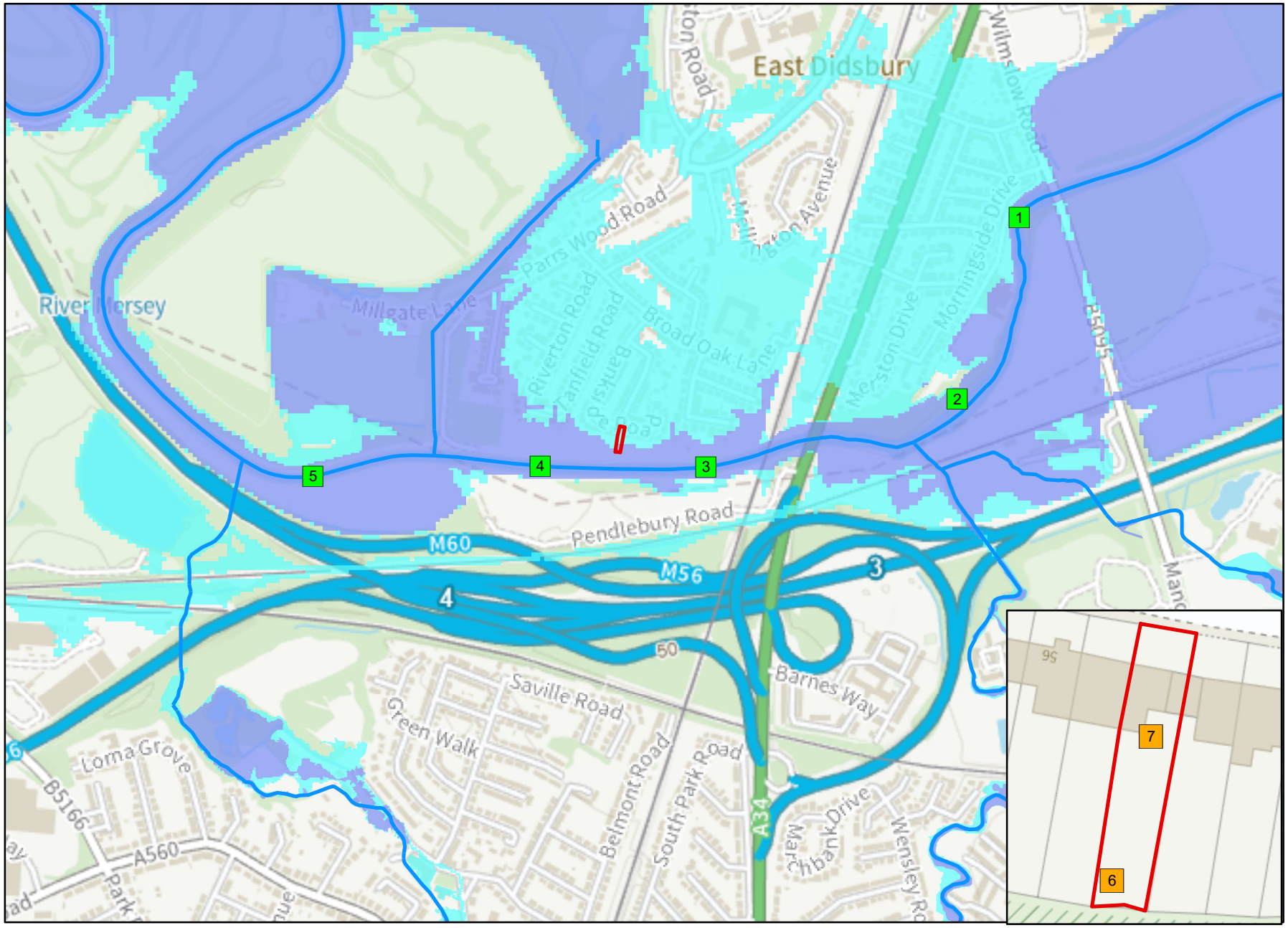
| | | | | | Undefended | | | | |

Detailed Flood Map Centred on Bankside Road, Manchester, M20 5GD.
Created 13/06/2024 [GMMC363017AB]



Environment Agency

1:10,001

N

Legend

- Site Location
- Model Measurements
- 2D Levels
- Main River
- Flood Zone 3
- Flood Zone 2

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