

GWK STRUCTURAL SOLUTIONS LTD **CONSULTING ENGINEERS**

Flood Risk Assessment

PROJECT REFERENCE:

- **Project No:** GK4232
- **Project Location:** 8 Victoria Road, Levenshulme, Manchester, M19 2EA.
- **Project Title:** Flood Risk Assessment
- **Client:** Mrs Farzana Osama Yaseen

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Executive Summary

The proposal is for the redevelopment of an existing basement space into habitable living at 8 Victoria Road, Levenshulme, Manchester, M19 2EA. To address the requirements of the new National Planning Policy Framework (NPPF) a Flood Risk Assessment is appropriate.

According to the Environment Agency (EA) Indicative flood maps, the development is located in Flood Zone 1, i.e., land assessed as having less than 1 in a 1000 year (<0.1%) annual probability of fluvial flooding in any year. The development target has been assessed against the NPPF 'Sequential Test'. Taking into consideration that the application is for the internal modification to an existing residential development in Flood Zone 1, Tables 1, 2 & 3 of the NPPF have been appraised to confirm that the development is appropriate, and an Exception Test would not be required.

The Flood Risk Assessment has also considered all other forms of flooding and overall, has found that the site is at low risk of flooding from all other sources.

There is no residual flood risk from the development site to the surrounding district due to the mimicking in storm water flow rates to the adjacent public sewer. The development does not therefore increase the risk of surface water flooding to other adjacent neighbourhoods.

1.0 Introduction

GWK Structural Solutions Limited (GWK) has been appointed by Mrs Fazana Osama Yaseen to prepare this Flood Risk Assessment (FRA) to support the planning application for the internal redevelopment of an unused basement into a habitable living space at 8 Victoria Road, Manchester, M19 2EA. In line with Section 10 of the 2021 'National Planning Policy Framework' plus the accompanying Technical Guidance on Flood Risk.

This report has been commissioned by Mrs Farzana Osama Yaseen and is specific to their interests in the development proposals as described by the Architectural plan in Appendix A.

The report has been commissioned to identify any flood related issues associated with the proposed development and any likely constraints that could be imposed, plus to consider the drainage strategy for it. The following issues have been suggested by the Environment Agency (EA), Manchester City Council as Lead Local Flood Authority (LLFA) and United Utilities (UU), and subsequently addressed within this report.

- Identify available data relating to flood risk at the site.
- Determine whether the site is at risk from flooding from all sources, including from breach or overtopping of any existing flood defences, surface water flooding and/or ground water flooding.
- Identify available data relating to drainage at the existing site, including historical discharges.
- Consider the flood risk from all other sources.
- Determine the current surface water drainage regime and assess any potential increase in surface water runoff as a result of the proposed development.
- Consider the recommendations of the Manchester CC Strategic Flood Risk Assessment (SFRA).
- Assess mitigation measures & off site impacts, and define any residual risks.

2.0 Development Description and Location

2.1 Site Location

The site is referenced in Figure 1, and a site location map is provided in Appendix A.

Item	Brief Description
Project name	8 Victoria Road, Manchester.
Site address and location	8 Victoria Road, Levenshulme, Manchester, M19 2EA.
Council Area	Manchester City Council
Approximate Grid Reference	OS: 386978, 394242
General Locality	The site is located in the Levenshulme area, some 3km to the southeast of Manchester City Centre.

Figure 1 Site Referencing Information

2.2 Existing Site Description

The full site (Red Line Boundary) is predominantly rectangular in plan shape and includes the existing residential property, with garden areas to the front and rear.

The property is boundary by existing residential properties to the north and south and is located in a predominately residential led area to all sides.

Figure 2 overleaf identifies the overall site location details. Further details of the existing layout can be seen on the plans in Appendix A.

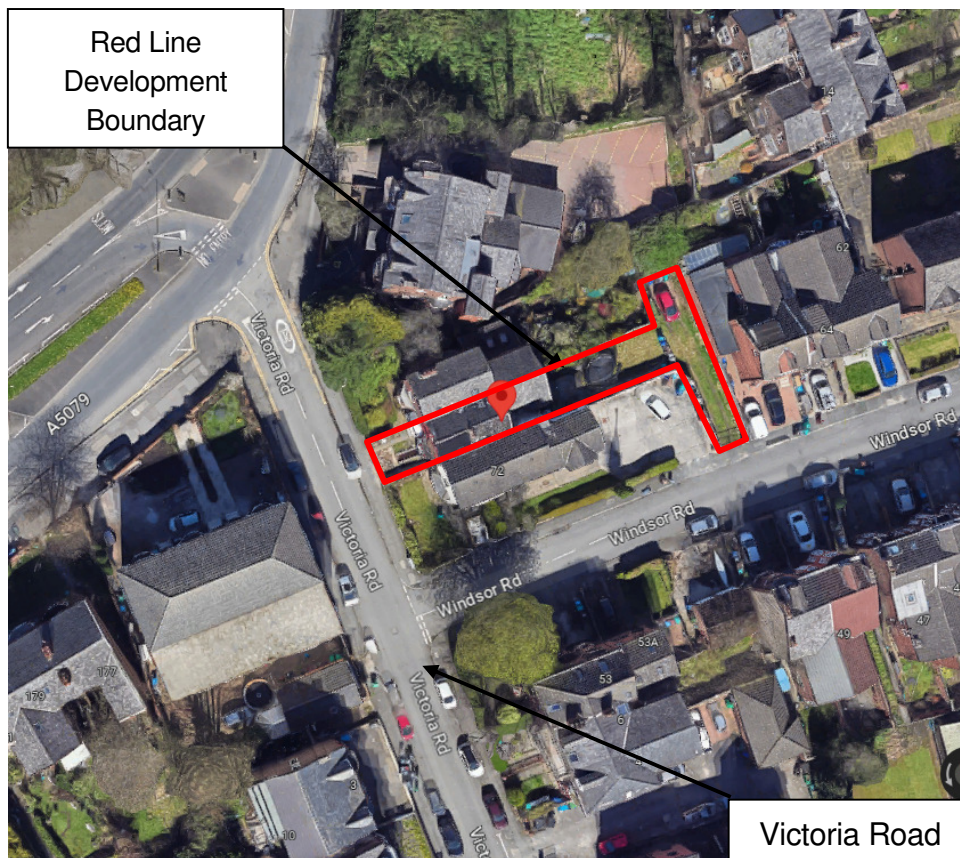


Figure 2 Site Location

2.3 Topography

No topographical survey has been completed at the site. A review of local level data would indicate the existing finished floor level to be at circa 50.500m AOD.

2.4 Hydrology

The closest identified watercourse is an un-named tributary of Cringle Black Brook, located some 125m south of the site flowing west within a 1500mm diameter culvert.

3.0 Planning Policy and Consultation

3.1 Planning Policy Framework

The flood maps provided by the Environment Agency (EA) locate the existing property within Flood Zone 1 i.e., land assessed as having a less than 1 in a 1000 year (<0.1%) annual probability of fluvial flooding in any year. As a requirement of the new NPPF (2021), Annex D, the proposed development should satisfy the requirements of the Sequential Test and where applicable the Exception Test.

Sequential Test:

Under the NPPF (2021), Zone 1 is defined as Low probability flood risk. The proposal is for a residential development, which in line with Table 2 is classified as 'More Vulnerable'.

Placing both these criteria into Table 3 (Flood Risk Vulnerability and Flood Zone 'Compatibility'), More Vulnerable development in Flood Zone 1 determines that 'Development is Appropriate.'

Exception Test:

As the Sequential test is passed, the Exception test is therefore not required.

3.2 Strategic Flood Risk Assessment (SFRA)

Manchester City Council in consultation with adjacent authorities, produced the Manchester City Salford City and Trafford Councils Hybrid Level 2 Strategic Flood Risk Assessment (2011) to demonstrate and define its understanding and role in managing flood risk. A fundamental aim of the strategy is that the Council embraces and supports its role as Lead Local Flood Authority, and this means taking the lead in helping with infrastructure development and re-development and working with other bodies in dealing with flood risk. The Council wants to encourage and wherever possible enforce current thinking and guidance and be able to provide improvements through working better together. The Strategy is aimed at providing an overview and assessment of local flood risk, setting out objectives and measures for how the Council will manage and reduce local flood risk. This Strategy builds on existing and developing approaches to flood risk management and promotes the use of a wide range of measures to manage flood risk. Risk should be managed in a co-ordinated way within catchments and balance the needs of communities, the economy and the environment.

The full report can be obtained from the Manchester City Council website. The main findings and objectives of the report are:

- The most significant sources of flood risk are fluvial and surface water.
- To better understand local flood risk and make best use of available information to better manage flood risk to people, businesses, property, infrastructure and the natural environment;
- To reduce the potential impact and costs of flooding in the area;
- To ensure resilience of local water bodies and drainage assets;
- To ensure appropriate development in areas of flood risk;
- To develop a collaborative partnership approach to flood risk management, and cooperate with other Risk Management Authorities (RMAs) and key stakeholders working across catchments;
- To assist communities in understanding information on flood risk and supporting themselves;

4.0 Definition of Flood Hazard

4.1 Generally

Flood risk to the proposed development site is considered from all sources of flooding, as defined by the NPPF (2021).

4.2 Sources of Information

THE NPPF (2021) requires the developer to consider the impact of runoff generated by the proposed development onto the downstream catchment, and to assess the risk of runoff from the surrounding district impacting on the development's footprint. Further, the report is to consider flood risk from all other sources. The following section defines the flood risk receptors and anticipated flood risk. Section 4.8 then tabulates the probability of flooding and the likely impacts.

Figure 3 summarises the main sources of information used in the identification of flood risk.

Source of Information	Details
Environment Agency Flood Map	From EA website
United Utility Sewer Records	Various Maps
Historic Maps	From various websites
Manchester City Council SFRA	Report & Various Maps

Figure 3 Sources of information used in the identification of flood risk.

4.3 Flooding from Rivers (Fluvial)

As mentioned in earlier sections, the closest identified watercourse is a tributary of Cringle Black Brook, located some 125m to the south within a 1500mm diameter culvert, flowing in a westerly direction.

Figure 4 below locates the site on the Environment Agency's indicative flood plain map. It is clear from this that the red line boundary is located within Flood Zone 1, i.e., land assessed as having less than a 1 in 1000 (<0.1%) annual probability of fluvial flooding in any year. The risk from fluvial flood water is therefore considered to be very low.

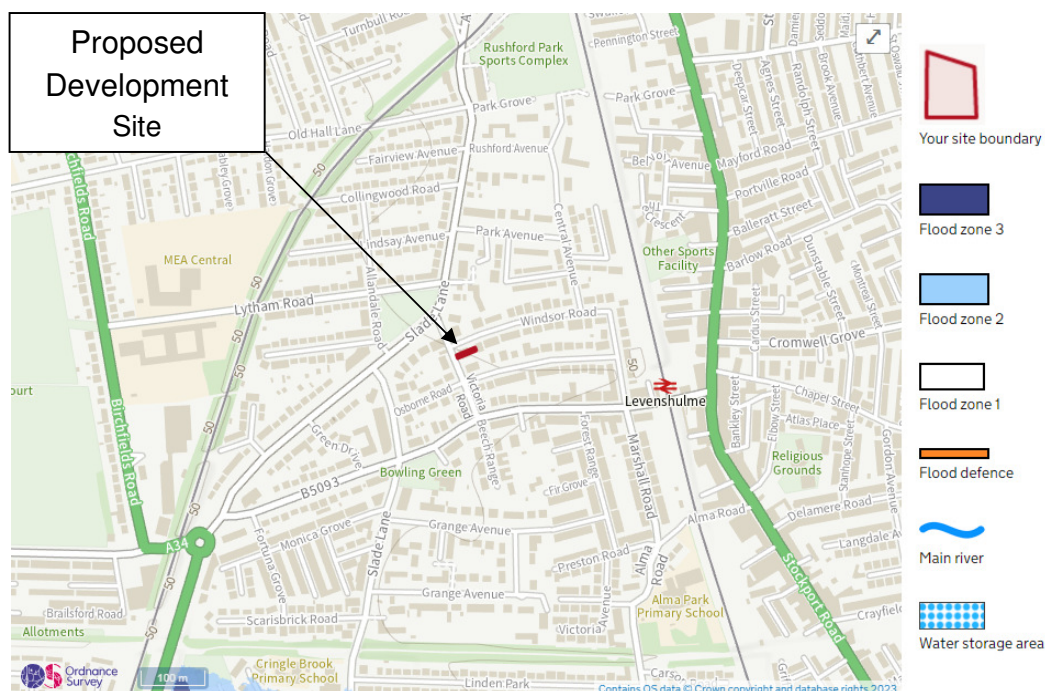


Figure 4 The EA's Indicative 100-year Flood Plain Map

4.4 Flooding from Surface Water (Overland Flow)

The surrounding land generally has a slight fall in a southerly direction along Victoria Road. Existing properties are located to the north and south and the property itself is raised above the Victoria Road highway, to which with the elevated kerb line will retain any water and direct it to the local drainage network. In light of this there is limited risk of overland flows causing any flood risk to the building and the proposed basement area.

Very Low susceptibility surface water flooding from the SFRA Maps plus the indicative surface water maps from the EA website (see Figure 5 below) have been identified at the overall site and tallies with a review of the site levels above.

It is therefore considered that the risk of overland & surface water flooding is low.

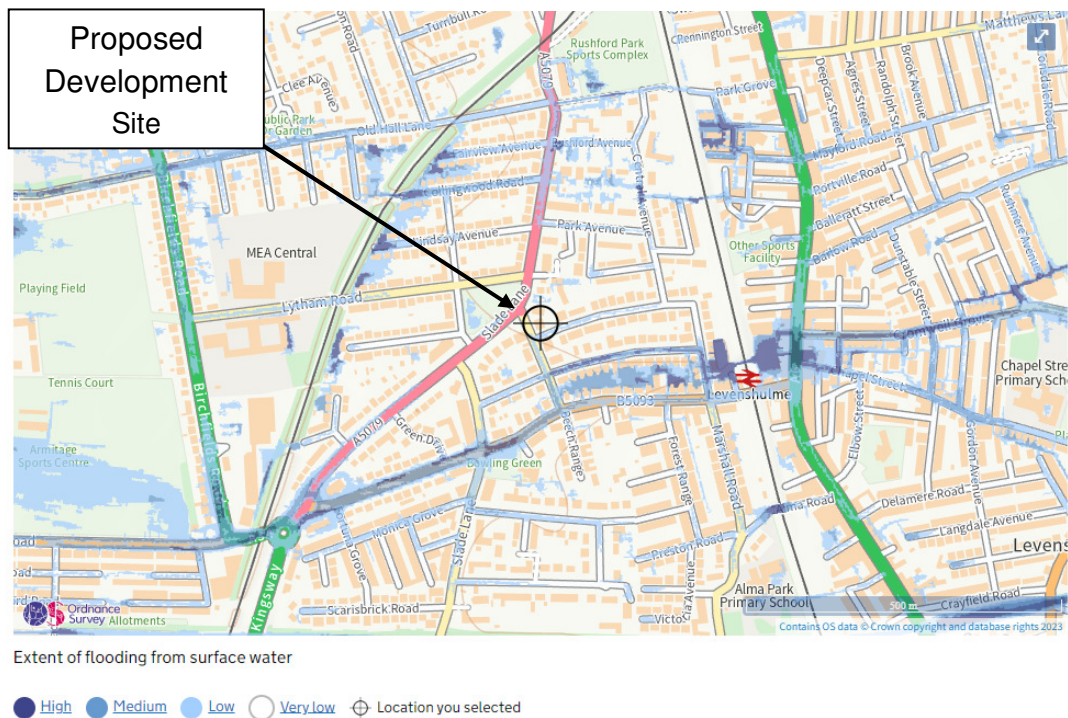


Figure 5 The EA's Indicative Surface Water Flood Map

4.5 Flooding from Sewers and Private Drainage

United Utilities (UU) sewer records have been reviewed and confirms there is a 600mm diameter combined water public sewer passing south through the centre of Victoria Road at a depth of circa 3.5m. Refer to Figure 6 below.

No details of the existing private drainage have been provided. However, it is expected to drain to the combined sewer via connections from both the front and rear.

The UU adopted sewers and private drainage networks serving the surrounding district ensures that the development footprint is protected from the impact of both upstream and downstream runoff. It is speculated that complete protection may well exist beyond a storm event equivalent to the 30-year statistical event. Beyond this projection, there may be a small degree of peripheral 'Exceedance' flooding within the areas above the sewers. However, this is expected to be localised and restricted to the location of specific manhole covers located outside the property boundary.

As the development works are to the basement only, the new drainage will be foul only. To mitigate the flood risk from the surcharging of the combined public sewer in the highway via a gravity connection, the new drainage will be isolated by incorporating a number of new small diameter pumping chambers adjacent to each device.

Based on this proposed and the sewer having lower ground levels than the existing building, flood risk from surcharged or flooded sewers is considered to be low.

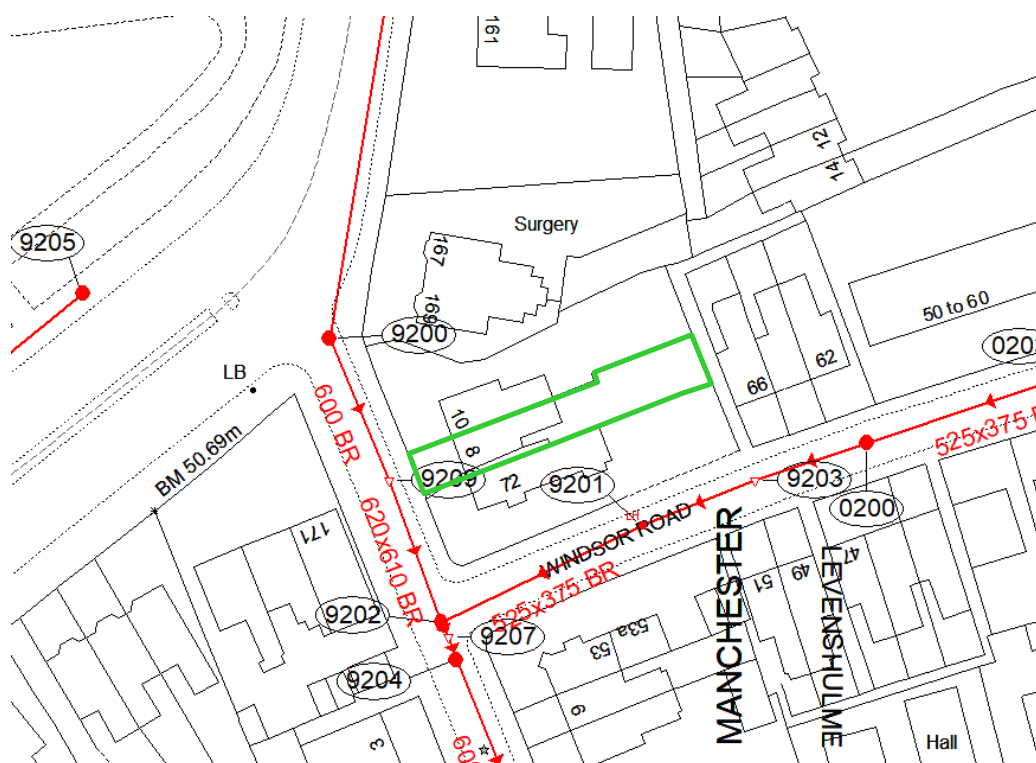


Figure 6 United Utilities Sewer Records

4.6 Flooding from Groundwater

No specific intrusive phase 2 site investigation will be carried out at the site.

The Manchester CC Level 2 Strategic Flood Risk Assessment (SFRA) would indicate that no groundwater flooding has been experienced or would be expected in the locality of the property. Furthermore, the basement is to be tanked with any surplus water collected and pumped to the sewer network.

Based on the current information and that the proposed building will be elevated above existing levels, it can be considered that the site is at a low risk of groundwater flooding.

4.7 Flooding from Artificial Sources

The site is not at risk of flooding from any other sources.

4.8 Summary

Below is a table summary of the flood risks associated with the development site.

Source	Flood Risk	Likely Impacts	Remarks
Tidal	Low	Low	Site located in Low-Risk Flood Zone 1 from Tidal Flooding.
Fluvial (Watercourse)	Low	Low	Site located in Low-Risk Flood Zone 1 from Fluvial Flooding.
Surface (Overland Flood Flow)	Low	Low	The site and surrounding area are relatively flat. No risk of overland flows due to existing buildings and highways.
Sewers & New Drainage	Low	Low	The existing combined water sewer within the adjacent highway is lower than the property level. New basement drainage to be isolated from public sewer via new internal pumps.
Groundwater	Low	Low	No indication through SFRA that the site is at risk of groundwater flooding. Basement area to be tanked.
Artificial Sources	Low	Low	Not considered relevant at site specific level.

Figure 7 Flood Risk Summary

5.0 Outline Drainage Strategy

5.1 Outline Surface Water Drainage Strategy

The general principle of the surface water drainage strategy is to continue to collect the runoff from the roof of the residential units via the existing downpipes. The water will then be directed to the existing below ground surface water drainage network that outfalls to the adjacent combined sewer.

As the property is a mid terrace, collecting the roof runoff also from the adjacent properties, there is no opportunity to place any flow controls on the network.

Fundamentally the impermeable areas remain unchanged which will subsequently maintain the peak discharge rates.

6.0 Management Measures, Off Site Impacts & Residual Risk

6.1 Flood Risk Management Measures

The assessment has proved that there is no risk of flooding to the building from any sources.

The foul drainage from the new basement area will be pumped to remove the flood risk from the surcharging public sewer.

6.2 Offsite Impacts

The redevelopment of the site does not impair the hydraulic continuity of any watercourse and the current “local hydraulics” of distributing watercourses / outfalls.

Surface water runoff will mimic the pre-development regime. By mimicking the pre-development peak runoff at its point of discharge into the adjacent sewers will reduce surface water flooding impact onto the downstream catchment.

6.3 Residual Risk

With careful design of the drainage elements as described above there will be no residual flood-related risks that will remain after the development has been completed.

Appendix A – Architect Drawings

