



GLR CONSTRUCTION LIMITED

**FLOOD RISK ASSESSMENT PREPARED FOR
GRAVATY MANCHESTER LIMITED**

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EXECUTIVE SUMMARY

This flood risk assessment has been produced on behalf of Gravaty Manchester Limited in respect of a commercial planning application for the proposed change of use of 61 Ducie Street, Manchester M3 1RR.

This report demonstrates that the property is at an acceptable level of flood risk, subject to the recommended flood mitigation strategies being implemented.

The Flood Map for Planning from the Environment Agency, confirms that the site lies within Flood Zone 2 (medium probability). The site lies within close proximity of the River Irwell. A detailed review of the modelled flood levels compared to the topographical survey confirms the site to be elevated above the 100 year + 20% change flood level, with depths of flooding in the 1000 year event considered minimal.

A blockage assessment of the culvert and drainage has shown that there is minimal risk to the site and that flood depths reach between 15mm and 25mm on the site car park, but does not influence the building footprint. It is recommended that the drains are cleared of debris.

Other sources of flood risk such as sewer flooding and pluvial run-off have been considered and there is no significant flood risk posed to the site from any other source. There is no evidence of historical groundwater flooding within the immediate vicinity of the site.

In compliance with the requirements of National Planning Policy Framework, and subject to the measures proposed, the development could proceed without being subject to significant flood risk. Moreover, the development will not increase flood risk to the wider catchment area as a result of suitable management of surface water run-off discharging from the site.

1.0 INTRODUCTION

- 1.1 This flood risk assessment has been produced on behalf of Gravaty Manchester Limited in respect of a commercial planning application for the proposed change of use of 61 Ducie Street, Manchester M3 1RR.

Table 1.1 – site summary

Site Name	61 Ducie Street
Location	Manchester M3 1RR
Application Site Area (ha)	
Development Type	Modern Textile Warehouse
EA Flood Zone	Flood Zone 2
EA Region	Greater Manchester, Merseyside and Cheshire
Local Planning Authority	Manchester City Council

Sources of Data

- 1.2 The report is based on the following information:
- Proposed Plan by 4D Planning (Drawing number 4D01OS)
 - Os Explorer Series mapping
 - Local Authority Surface Water Flood Risk Maps
 - Manchester City, Salford City and Trafford Council SFRA
 - Site visit undertaken by GLR Construction February 2017

Existing Site

- 1.3 The site currently comprises a modern commercial units occupied by a textile distribution company and several offices. A site location plan is included as **Figure 1.1**.
- 1.4 The site is bounded by the A6042 (Trinity Way) and Mary Street. The River Irwell can be found to the south of the site.
- 1.5 The site can be accessed via Mary Street. Current site drainage is to an existing sewer network. The bedrock geology beneath Manchester comprises Sandstones and Mudstones.

Proposed Development

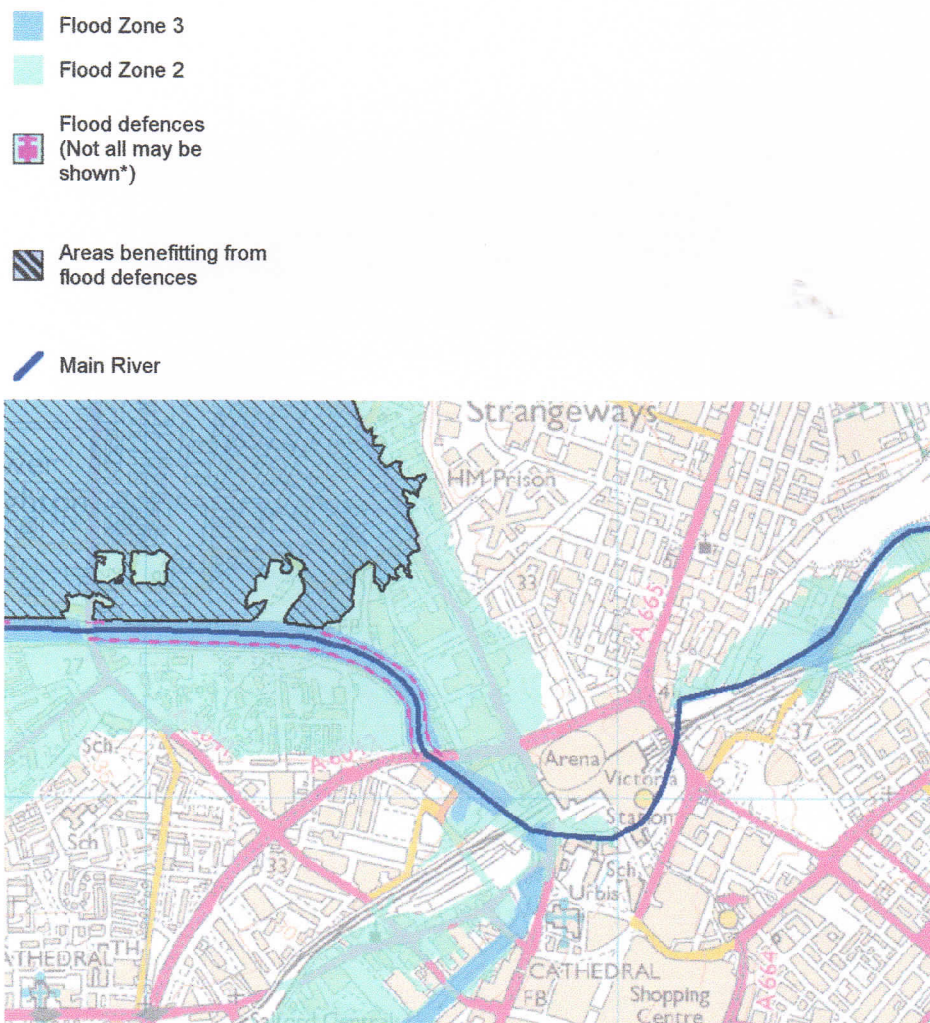
- 1.6 The proposal comprises the change of use of the existing commercial warehouse to an indoor trampoline park. The current access and car parking area will be retained as part of the proposals

Flood Risk Planning Policy

- 1.7 The National Planning Policy Framework ('NPPF') sets out the Government's national policies on different aspects of land use planning in England in relation to flood risk. Planning Practice Guidance is also available online.
- 1.8 The Planning Practice Guidance sets out the vulnerability to flooding of different land uses. It encourages development to be located in areas of lower flood risk where possible, and stress the importance of preventing increases in flood risk off-site to the wider catchment area.
- 1.9 The Planning Practice Guidance also states that alternative sources of flooding, other than fluvial (river flooding), should also be considered when preparing a flood risk assessment.
- 1.10 This flood risk assessment takes account of the guidance documents.

Flood Zones

- 1.11 The Flood Zone Map for Planning has been prepared by the Environment Agency. This identifies areas potentially at risk of flooding from fluvial or tidal sources. An extract from the mapping showing Flood Zones relative to the site is include as **Figure 1.1** shown below.



- 1.12 The online Flood Zone mapping shows the site to be located entirely within Flood Zone 2 (Medium Probability). This zone is identified as land assessed as having between a 1 in 100 and 1 in 1000 or greater annual probability of river/tidal flooding, or land having between a 1 in 200 and 1 in 1000 annual probability of sea flooding.
- 1.13 The Planning Practice Guidance states that a sequential test should be applied if a proposed development is in Flood Zone 2 or 3 and an exception test is required if the development is 'highly vulnerable' in flood Zone 2.
- 1.14 Exceptions to the sequential test rule apply if the development involves a change of use. The proposed change of use from textile warehouse to indoor trampoline park means that a sequential test is not required as part of the flood risk assessment.
- 1.15 Table 2 of the Planning Practice Guidance classifies land use. Under these classifications the proposed development use is considered to be 'Less Vulnerable'.
- 1.16 Table 3 of the Planning Practice Guidance identifies that a 'Less Vulnerable' development within Flood Zone 2 is considered to be appropriate.

Other Relevant Policy and Guidance

Strategic Flood Risk Assessment

- 1.17 The proposed development site falls within the Manchester City Council Strategic Flood Risk Assessment catchment.
- 1.18 Local flood risk within Manchester is widespread and comes from a range of different sources, often interacting with each other. Surface water flood risk often interacts with sewers, highway gullies and non-main rivers, many of which are culverted or partly culverted and form much of the drainage infrastructure for the City.
- 1.19 All rivers in Manchester will eventually drain into the Manchester Ship Canal and from there to the Irish Sea. There are also three broad canals in Manchester: the Ashton Canal and the Rochdale Canal which extend from the City Centre through east and north Manchester to Ashton under Lyne and Rochdale respectively; and the Bridgewater Canal which extends westwards from the City Centre into Trafford and Salford.
- 1.20 Flood risk from groundwater has not been historically significant, although an increasing number of flood incidents from groundwater have been reported in recent years. The reason for this is not certain, and a combination of factors may be responsible for the increase.

2.0 POTENTIAL SOURCES OF FLOOD RISK

- 2.1 The table below identifies the potential sources of flood risk to the site and the impacts which the development could have in the wider catchment prior to mitigation. These are discussed in greater detail in the forthcoming section. The mitigation measures proposed to address the flood risk issues are discussed in section 3.0.

Table 2.1 Pre-mitigation sources of flood risk

Flood Source	Potential Risk				Description
	High	Medium	Low	None	
Fluvial		X			Site shown to be in Flood Zone 2
Tidal				X	There is no tidal influence on the site
Canals				X	There are no canals located within the immediate surrounding area
Groundwater		X			Potential for groundwater flooding to occur at the surface
Reservoirs and waterbodies				X	The site is shown to fall outside of the area at risk of reservoir failure
Sewers			X		The sewer network around the site may have limited capacity, which could be exceeded in an extreme storm event
Pluvial run-off			X		There is low pluvial risk to the site
Effect of development on wider catchment				X	The development will not result in impedance of surface water route nor increase the areas of impermeable surfaces

Fluvial Flood Risk

- 2.2 The closest main river is the River Irwell, located approximately 30m of the site. The overall risk to the site arising from a river flooding event is considered to be medium in line with the Flood Zone 2 designation. The depths of potential flooding during such an event are considered minimal and could readily be managed through appropriate mitigation.
- 2.3 Any risk posed by shallow flooding is considered negligible, particularly given the residual nature of the risk posed. Mitigation measures suggested to address flooding risks should adequately address any ingress in to the property.

Groundwater Flood Risk

- 2.4 The site is located on bedrock comprising Sandstones and Mudstones. The bedrock is designated as a 'secondary B' aquifer, this is described as predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

Pluvial Flood Risk

- 2.5 Pluvial flooding occurs when an extremely heavy downpour of rain saturates the urban drainage system and the excess water cannot be absorbed.
- 2.6 These unpredictable events occur without warning and in the worst cases can cause huge destruction and devastate whole neighbourhoods. As our climate warms up, the increased incidence of extreme weather events seems inevitable. New research highlights the risk of pluvial flooding in the UK and in particular its impact on vulnerable people and places.

3.0 Flood risk mitigation

Site Survey

- 3.1 A full site survey was carried out on Friday 10 February 2017. The findings of which are as follows:-



Photograph 1.1 River Irwell passing to the south of the site



Photograph 1.2 Site situated to the left of Mary Street, Faithfull building in the middle and the River Irwell to the extreme right.



Photograph 1.3 Site building in the foreground with Trinity Road and bridge to the right. River and river bank to the foreground.



Photograph 1.4 Footpath adjacent the River Irwell.



Photograph 1.5 The entrance to site from Mary Street, which is rising away from the river to the right of picture.



Photograph 1.6 Main entrance to the building



Photograph 1.7 Main drainage in middle of the yard.

Flood Survey Recommendations

- 3.2 A flood mitigation survey was conducted on the building in its present state. The findings are as follows:-
- 3.3 The building has a main entrance to the front, 4 roller shutter doors to the side, 2 exit doors to the west side, 3 exit doors to the south side and 2 exit doors to the east side. There are a number of soil pipes exposed on the front of the building and waste pipes from basins. It was also noted that there was some brick damage to the west side.
- 3.4 Based on previous river level records the risk of flooding at this property is low and therefore flood mitigation to the building will not be necessary at this point in time.

4.0 Sequential Test

- 4.1 The proposed change of use from textile warehouse to indoor trampoline park means that a sequential test is not required as part of the flood risk assessment.

5.0 Conclusions and Recommendations

- 5.1 The latest river information for the River Irwell at Adelphi Weir (further up stream) indicates that the normal range is 0.18m to 0.74m.
- 5.2 The normal level of the River Irwell at this location in average weather conditions is between 0.21m and 0.41m. The usual range of the River Irwell in this location is between 0.21m and 1.11m. It has been between these levels for 90% of the time since monitoring began.
- 5.3 Based on the findings of the survey ie the site being situated in Flood Zone 2 and its close proximity to the River Irwell, the building would benefit from some flood mitigation products but this would not be considered to be absolutely necessary in the unlikely event of a 1 in 1,000 flooding incident.