

Fallowfield Campus Redevelopment Project

Flood Risk Assessment

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author **Dominic Nugent**

date **29/08/2023**

approved **Nilani Venn**

signature  Nilani Venn
I am approving this document
2023.08.29 15:51:54+01'00'

date **29/08/2023**

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Glossary

Term	Definition
ACDP	Areas with Critical Drainage Problems
AEP	Annual Exceedance Probability
AGMA	Association of Greater Manchester Authorities
AOD	Above Ordnance Datum
CC	Climate Change
CDA	Critical Drainage Areas
DFE	Design Flood Event
EA	Environment Agency
EAFW	Environment Agency Flood Warning
FFL	Finished Floor Levels
FRA	Flood Risk Assessment
GMCA	Greater Manchester Combined Authority
LLFA	Lead Local Flood Authority
MCC	Manchester City Council
MST	Manchester City, Salford City and Trafford Councils
NPP	National Planning Policy Framework
PBSA	Purpose Built Student Accommodation
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage Systems
UOM	University of Manchester

1 Executive Summary

Subject		Findings
Site Description		The existing site is part of the Fallowfield Campus of the University of Manchester and is located in Fallowfield, Greater Manchester, UK. The site is currently used for student halls of residence.
Proposal Description		The proposed development is for the replacement of existing student residences at the Fallowfield Campus with purpose built student accommodation (PBSA) (Sui Generis) up to 3,300 beds, to include all associated ancillary uses, demolition and other necessary works.
Application of the NPPF	Vulnerability Classifications	The primary proposed land use is student halls of residence (PBSA) which have a 'More Vulnerable' classification in accordance with National Planning Policy Framework (NPPF) planning guidance.
	Sequential & Exception Test	The Sequential Test and Exception Test are not considered to be required as the site is located in Flood Zone 1.
Site Flood Risk	Fluvial & Coastal	The site is located in Flood Zone 1 and is therefore located outside of the 0.1% Annual Exceedance Probability (AEP) event, excluding climate change allowance. However, as Fallowfield Brook does not appear to have been accounted for in the EA Flood Zones, the risk from Fallowfield Brook has been assessed through the EA Surface Water Mapping, as reasoned in the Fluvial Flood Risk section. Flood risk from fluvial and tidal sources is low.
	Artificial Sources	Five reservoirs are located upstream of Gore Brook, located approximately 400m north of the site. The flood extent from EA Reservoir Flood Risk mapping does not reach the site. Flood risk from reservoir and artificial sources is low.
	Surface Water & Sewers	Surface water flooding has been predicted within the site boundary from off-site flows within the EA Surface Water Flood Maps for the 0.1% AEP event. Due to the requirement to assess the impact of a 45% increase in rainfall intensity due to climate change, the 0.1% AEP has been used as a proxy for assessment of risk from the 1% AEP +45% climate allowance design event. Existing walls at the site are anticipated to impact surface water flows adjacent to Moseley Road however, no modelling has been carried out with the walls in place to date. The risk of flooding has been assessed from two scenarios: - A preliminary assessment based upon existing levels of the risk with the existing walls in place; - An assessment of risk based upon the EA Surface Water Flood Map which is understood to exclude the impact of the walls on surface water flows. Flood risk from surface water sources is high if mitigation measures are not incorporated. Existing combined sewers are known to be present on Whitworth Lane, Moseley Road and Wilmslow Road adjacent to the site. Flood risk from sewer sources is likely to be low, although potential surcharge from Whitworth Lane may enter the site if flooded to a sufficient depth.
	Groundwater	A Geotechnical Investigation was undertaken for the site in April-June 2015 by Coffey Geotechnics. It was reported that groundwater levels in Made Ground were observed between 0.51m and 1.94m below ground level. It was inferred by Coffey that the groundwater in the Made Ground was resulting from locally perched water located

		above more impermeable strata of Glacial Till. Flood risk from groundwater sources is low, although there may be a risk during construction in areas of perched water.
Mitigation Measures	Drainage Strategy	The proposed drainage strategy is to intercept surface water runoff from within the proposed site up to a 1% AEP with 45% climate change allowance and discharged from the site following the drainage hierarchy: discharge to soakaway; discharge to Fallowfield Brook; discharge to combined public sewer network. Further survey data obtained during the reserved matters will determine the final strategy.
	Stormwater Wayleave	A wayleave for stormwater flows of ~4m width is proposed for at the south-east of the site to route excess surface water flows through the site to Moseley Road, replicating baseline flow routes in a more controlled manner. Modelling of surface water risk has not been carried out in detail and the exact dimensions required for the wayleave are to be determined relative to the Finished Floor Levels (FFLs) of the adjacent building.
	Finished Floor Levels	All FFLs at the site are proposed to be raised a minimum of 300mm above the proposed exterior ground level with ground levels to slope away from the building. Where surface water flows are mapped, additional increases in FFL based upon the 0.1% AEP modelled water level at the building location in the EA Surface Water Flood Map baseline scenario have been recommended.
Summary and Conclusion		The site is located in its entirety within the EA Flood Zone 1. Fluvial risk from flow exceedance of Fallowfield Brook has been assessed through analysis of Surface Water Flood Maps. The site has been shown to be located outside the EA modelled flood envelope for reservoir risk. Shallow perched groundwater is understood to be located below the site with the potential that the ground could become saturated and cause localised flooding during wet periods. It is recommended that this risk is studied as part of the building structural designs for the site. The principal risk to the site has been identified to be from surface water flood risk. Off-site flows are predicted to impact the south-east of the site at the present location of Woolton Hall. Flood flows are predicted to enter the site from the east via Whitworth Lane and flow through the site back to Moseley Road at the southern entrance to the site. It has been proposed that a surface water flow wayleave is provided at the south-east of the site for offsite flows and that FFLs are raised 300mm above the higher of the surrounding exterior level or the 0.1% EA Surface Water Flood Map water level. The proposed drainage strategy is to intercept surface water runoff from within the proposed site up to a 1% AEP with 45% climate change allowance.

2 Introduction

2.1 Background

This site-specific Flood Risk Assessment (FRA) has been prepared by Buro Happold as part of an outline planning application for the replacement of student halls of residence buildings at the Fallowfield Campus of the University of Manchester (UoM) on behalf of the university.

The Fallowfield Campus Redevelopment Project, hereafter referred to as the proposed development, has been prepared based upon the following:

- Parameter Plans, 18th August 2023, Sheppard Robson
- Technical Masterplan 17th August 2023, Landscape Projects

This assessment has been carried out in accordance with the UK National Planning Policy Framework (NPPF) and considers the risk of flooding from fluvial, coastal, surface water (pluvial), combined sewer, artificial (reservoir and canal) and groundwater sources.

2.2 Site Description

The site, shown in Figure 2-1, is located within the overall catchment of the River Mersey which drains to Manchester Ship Canal to the west of the site before reaching the coast at the River Mersey estuary.

The nearest large watercourses to the site discharge into Chorlton Brook, a direct tributary of the River Mersey:

- **Platt Brook** - located approximately 400m north of the site.
- **Gore Brook** - discharges to Platt Brook and is also located ~400m north of the site.
- **Fallowfield Brook** - estimated to be located approximately 60m south of the site where it is enclosed within a below ground culvert.
- **Cringle Brook** – located approximately 400m south of the site.

The site currently comprises existing student halls of residence which are proposed to be demolished and replaced with new PBSA. Existing halls of residence on the site are:

- Woolton Hall;
- Oak House; and
- Owens Park (closed).

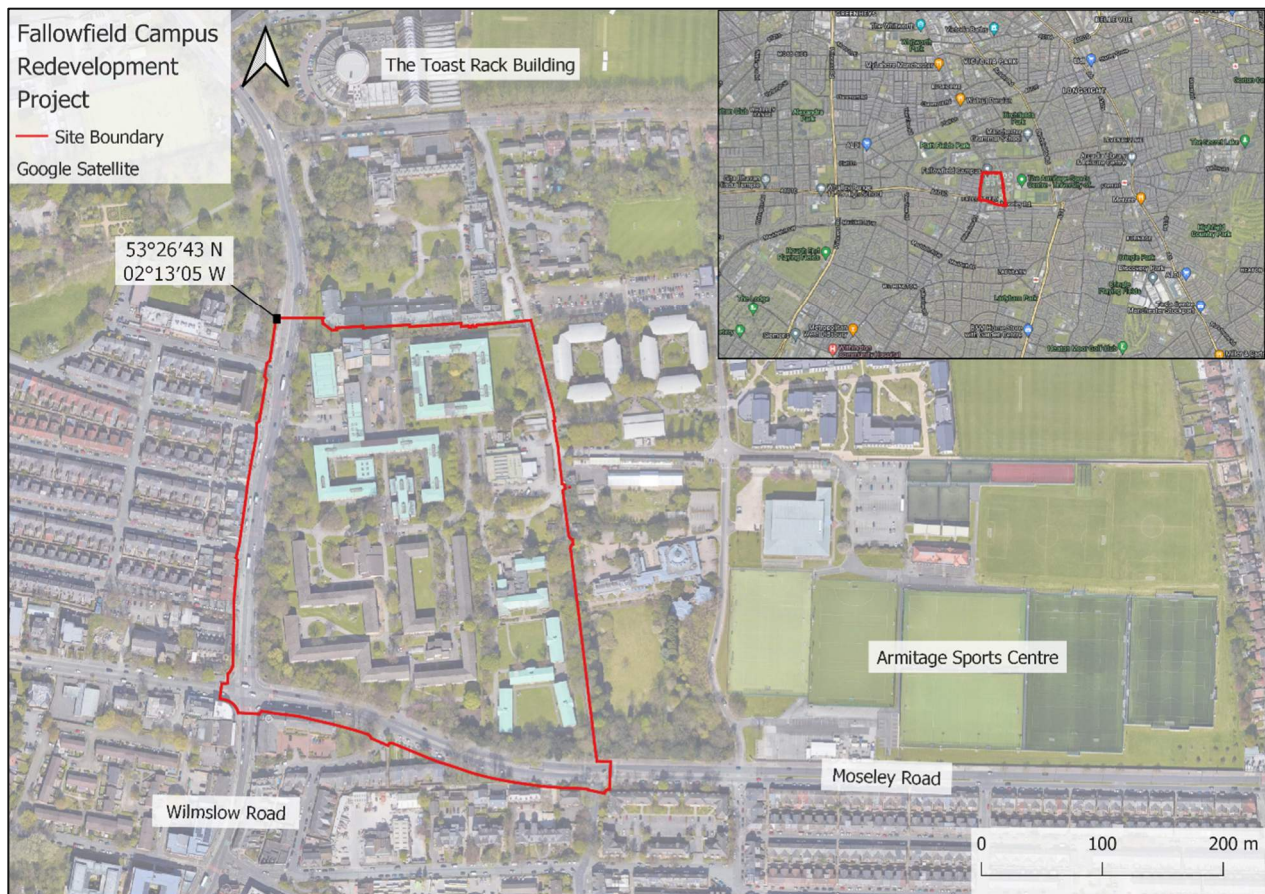


Figure 2-1 – Site Location

Existing levels at the site vary between ~39m Above Ordnance Datum (AOD) at the south of the site adjacent to Mosely Road and ~45mAOD at the north of the site.



Figure 2-2 – Existing Levels at the site

2.3 Proposals

It is proposed to replace the existing student residences at Owens Park, Oak House and Woolton Hall with up to 3,300 units of new PBSA. The full proposed development description is included below:

“Outline planning application (with access only) for the phased demolition of existing buildings and phased development of up to 3,300 Purpose Built Student Accommodation bedrooms (Sui Generis use class) with associated facilities including waste storage, laundry and cycle storage; up to 4,500 sq m of floorspace to be used for ancillary purposes associated with the student residential use of the site within Use Class F1a, Class E(a), E(b), E(c), E(d), E(g), Sui Generis (drinking establishment and hot food takeaway); ancillary supporting staff accommodation (up to 55 bedrooms) (Sui Generis use class), and up to 1,200 sq m, of ancillary residential dwellings (Use Class C3), plus associated car parking, hard and soft landscaping, open space, utilities, footpaths and roads”

The Technical Masterplan on which the Flood Risk Assessment is based upon is provided in Figure 2-3. The Masterplan provides an indicative configuration of land use and buildings across the site to assist the technical assessment of the proposals against key planning policy objectives and demonstrating a viable quantum of use, that can be achieved within the parameters and principles of the Parameter Plans.

Existing levels at the site are proposed to be retained insofar as feasible to provide protection for the existing tree root protection zones on the site.

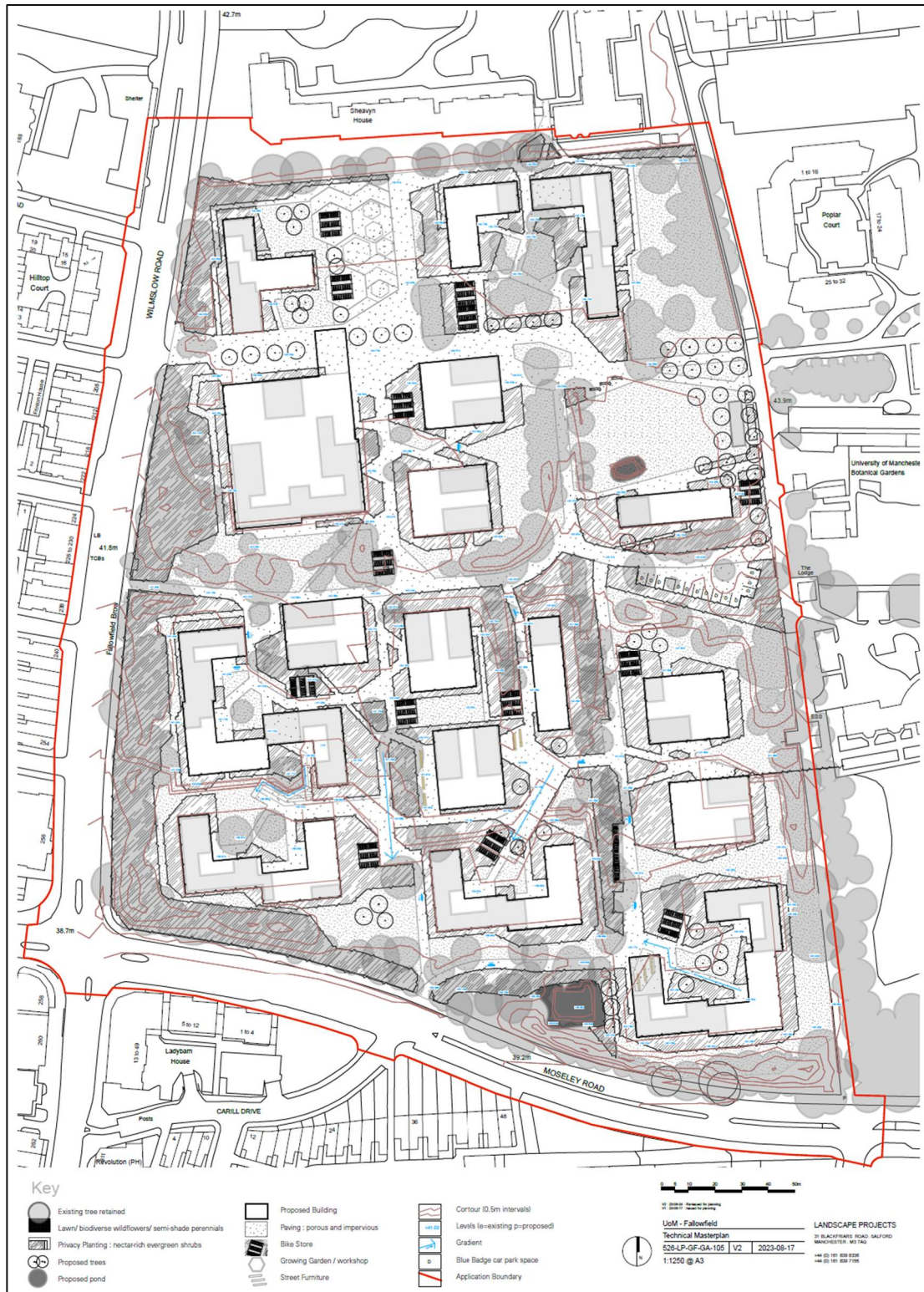


Figure 2-3 – Technical Masterplan Layout for Fallowfield Campus Redevelopment Project

3 Planning Context

3.1 National Planning Policy Framework (NPPF)

Land use planning policy in England is governed by the NPPF, introduced in 2012 and revised in 2018, 2019 and 2021. This FRA has been carried out in accordance with the July 2021 revision of the NPPF. The NPPF is issued by the Government Department for Levelling Up, Housing and Communities (DLUCH), as named since September 2021, formerly known as the Ministry of Housing, Communities and Local Government (MHCLG) at the time of issue.

As part of the wider sustainability objectives of the NPPF, the framework asks proposed developments to mitigate and adapt to the impacts of climate change, accounting for the long-term implications for flood risk (NPPF Ref. 153).

The framework also requires that inappropriate development in areas of flood risk be avoided (NPPF Ref. 159), stating that where development is necessary in areas of flood risk, it should 'be made safe' for its lifetime without increasing flood risk elsewhere.

3.1.1 Responsible Authorities

The Flood and Water Management Act (2010) stipulated the duty imposed on the Environment Agency (EA) for supervision of matters relating to flood defence in England with a focus on the risk associated with statutory 'Main Rivers', 'Critical Ordinary Watercourses', coastal and reservoir risk. The act also created the designation of a Lead Local Flood Authority (LLFA) for management of risk including from Ordinary Watercourses, surface water, ground water and sewer flood risk. The LLFA for the site is Manchester City Council (MCC).

Successive Land Drainage Acts from 1930 have also established Internal Drainage Boards (IDBs) for catchment wide management of flood risk in areas of special drainage needs. No IDBs have presently been established within Greater Manchester.

3.1.2 Strategic Flood Risk Assessments

As stipulated in the NPPF, local authorities are required to carry out and keep up to date a strategic assessment of flood risk (SFRA) for the governed area, considering the management of risk from all sources and the cumulative impacts of flooding in local areas susceptible.

The most relevant SFRAs to the site are as follows:

- **Manchester, Salford and Trafford (MST), 2010-2011** - A Level 1 SFRA¹, Level 2 SFRA² and accompanying maps were prepared by JBA in 2010-2011 for Manchester City, Salford City and Trafford Councils covering the site. The risk of groundwater flooding is covered in the Level 1 report only while a more detailed assessment of the risk of fluvial, canal, surface water and sewer flooding were provided in the Level 2 report. The SFRA does not cover the risk of reservoir flooding on the grounds of national security.
- **Greater Manchester Combined Authority (GMCA), 2019-2020** - A Level 1 SFRA has been prepared by JBA for the Greater Manchester Combined Authority (GMCA) in March 2019³, of which MCC is a constituent

¹ JBA, March 2010. Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA: Level 1 SFRA. Trafford Council.

² JBA, March 2011. Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA: Level 2 SFRA. Trafford Council.

³ JBA, March 2019. Level 1 Strategic Flood Risk Assessment for Greater Manchester – Update. Greater Manchester Combined Authority.

authority. A Level 2 SFRA was also prepared in October 2020⁴. This SFRA had a focus on sites related to the development of the Greater Manchester Spatial Framework.

3.2 Flood Risk Assessments

Applications are required to be supported by a Flood Risk Assessment where the site is located in Flood Zone 2 or 3 (NPPF Ref. 167) or where a site in Flood Zone 1 is:

- Greater in area than 1 hectare
- Land which has been identified by the EA as being Areas with Critical Drainage Problems (ACDPs - currently only applicable in Devon and Cornwall)
- Land identified in an SFRA as being at increased risk of flooding in the future
- Land that may be susceptible to other sources of flooding (e.g. pluvial flooding) where the development would introduce a more vulnerable use

The site covers an area of 9.49 ha (>1ha) and therefore qualifies for assessment by site area.

3.2.1 Flood Zones

The risk of flooding from fluvial and coastal sources has been compiled into zoning maps for planning by the EA. These are documented in Table 1 of the NPPF associated planning guidance from DLUHC and MHCLG (Paragraph: 079 Reference ID: 7-079-20220825)⁵ and reproduced in Table 3-1 below.

Table 3-1 - Description of the NPPF Flood Zones

Flood Zone	Definition
Zone 1 (Low Probability)	Land having a less than 0.1% annual probability of river or sea flooding.
Zone 2 (Medium Probability)	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding.
Zone 3a (High Probability)	Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea.

⁴ JBA, October 2020. Greater Manchester Level 2 Hybrid Strategic Flood Risk Assessment – Main Report. Greater Manchester Combined Authority.

⁵ Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government, August 2022. Guidance: Flood Risk and Coastal Change. Available Online at: <https://www.gov.uk/guidance/flood-risk-and-coastal-change> [Accessed: 28/06/23]

Flood Zone	Definition
Zone 3b (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.

Annual Probability or Annual Exceedance Probability (AEP) describe the probability of an event occurring in any given year based upon historic hydrometry records.

Under Schedule 4 of the Town and Country Planning Order 2015⁶, the Environment Agency should be consulted when a development is located within Flood Zone 2 and Flood Zone 3, or within 20m of a Main River watercourse.

3.2.2 Sequential Test

It is stated in the NPPF that all plans should take a sequential approach to locating development (NPPF Ref. 161), providing a risk-based assessment of the location of the development. The aim is to steer development to areas with the lowest risk of flooding from all sources (NPPF Ref. 162). A formal Sequential Test is not considered to be required for the site as the proposed development is located within Flood Zone 1⁷.

3.2.3 Design Life and Climate Change

Residential developments are considered to have a lifetime of at least 100 years unless specific reasons are provided as to why a shorter planned lifetime is justified (Paragraph: 006 Reference ID: 7-006-20220825)⁵. As a result, the design life of the proposed development is considered as 100 years.

Over the next 100 years, the risk of rainfall induced flooding is anticipated to increase in severity and frequency due to increased global average temperatures. To account for this increased risk, a climate change allowance is required to be applied in accordance with NPPF to provide future resilience against changes to the local climate (Paragraph: 006 Reference ID: 7-006-20220825)⁵.

Climate change allowances for peak rainfall are set based upon hydrological region. The site is located within the 'Upper Mersey Management Catchment'. The allowances for the catchment are provided in Table 3-2 below.

⁶ UK Government Statutory Instruments, Revised July 2021. Town and Country Planning (Development Management Procedure) (England) Order 2015 Schedule 4. Accessed Online At: <https://www.legislation.gov.uk/uksi/2015/595/schedule/4> [Accessed: 03/07/23].

⁷ Environment Agency and DEFRA, February 2017. Guidance – Flood Risk Assessment: The Sequential Test for Applicants. Accessed Online: <https://www.gov.uk/guidance/flood-risk-assessment-the-sequential-test-for-applicants> [Accessed: 28/06/23].

Table 3-2 – Rainfall Climate Change Allowances for the Upper Mersey Management Catchment (Accessed: 28/06/2023)

Annual Exceedance Probability	Epoch	Central Allowance	Upper End Allowance
3.3%	2050s	20%	35%
	2070s*	30%	40%
1%	2050s	25%	40%
	2070s*	30%	45%

**For developments with a lifetime between 2061- 2125, it is stated that the 2070s epoch allowances should be used*

3.2.4 Design Floods

The probability of a storm event occurring in any given year can be expressed as an Annual Exceedance Probability (AEP – e.g. 1% AEP) or a Return Period (e.g. a 1 in 100 Year Event). In accordance with planning guidance (Paragraph 002 Reference ID: 7-002-20220825)⁵, the design floods considered in this assessment were the following, with appropriate climate change allowances considered where applicable:

- river flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year);
- tidal flooding with a 0.5% annual probability (1 in 200 chance each year);
- surface water flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year)

4 Flood Appraisal

4.1 Sources of Risk

This assessment considers the risk of flooding to the site from the following sources:

- Fluvial & Coastal
- Artificial Sources
- Surface Water (Pluvial)
- Combined Sewers
- Ground Water

4.2 Fluvial & Coastal Flood Risk

Fluvial flooding occurs when sustained or intense rainfall events increase flow rates in watercourses, causing the water level to rise above the level of the banks and into the surrounding areas. Coastal flooding typically occurs when a storm surge event coincides with high tidal water levels and can impact estuarine watercourse levels through a raised downstream water level.

4.2.1 Local Watercourses

The site is located within the macro catchment of the River Mersey, which flows through south Greater Manchester before outflowing into the Manchester Ship Canal in the west. The ship canal discharges into the River Mersey estuary at the coast ~50km from the site.

Due to the 50km distance and the site being located above ~39mAOD in its entirety, the site is not expected to be impacted by coastal flood risk in any form for the design life of the proposed development.

The site is located within the sub-catchment of Fallowfield Brook, which discharges into Chorlton Brook before reaching the confluence with the River Mersey.

It can be seen from Figure 4-1 that to the north of the site, Gore Brook and Platt Brook flow from east to west. To the immediate south of the site, Fallowfield Brook passes from east to west, with the alignment predominantly culverted in the vicinity of the site. Further south, Cringle Brook also flows from east to west past the site.

The alignment for the brooks has been approximated based upon the Ordnance Survey (OS) GIS Open Rivers dataset provided by the Open Government Licence v3.0⁸ supported by satellite imagery. The alignment of culverted routes is unconfirmed and in particular, the alignment of Fallowfield Brook is currently uncertain. The alignment has been approximated along the green line provided in Figure 4-1 and Figure 4-2 by amalgamating survey information from a 1984 drainage survey provided in a consultation with the LLFA, shown in Appendix B, and United Utilities asset records. Further detail has been provided within the Drainage Strategy. As it is not possible to undertake the relevant surveys ahead of the outline planning submission, an accurate alignment for the brook is not available to inform the outline planning application. Investigations into the Fallowfield Brook will therefore be undertaken at reserved matters stage.

⁸ Ordnance Survey, 2023. Open Rivers. Accessed Online at: <https://www.data.gov.uk/dataset/dc29160b-b163-4c6e-8817-f313229bcc23/os-open-rivers> [Accessed: 22/06/23].

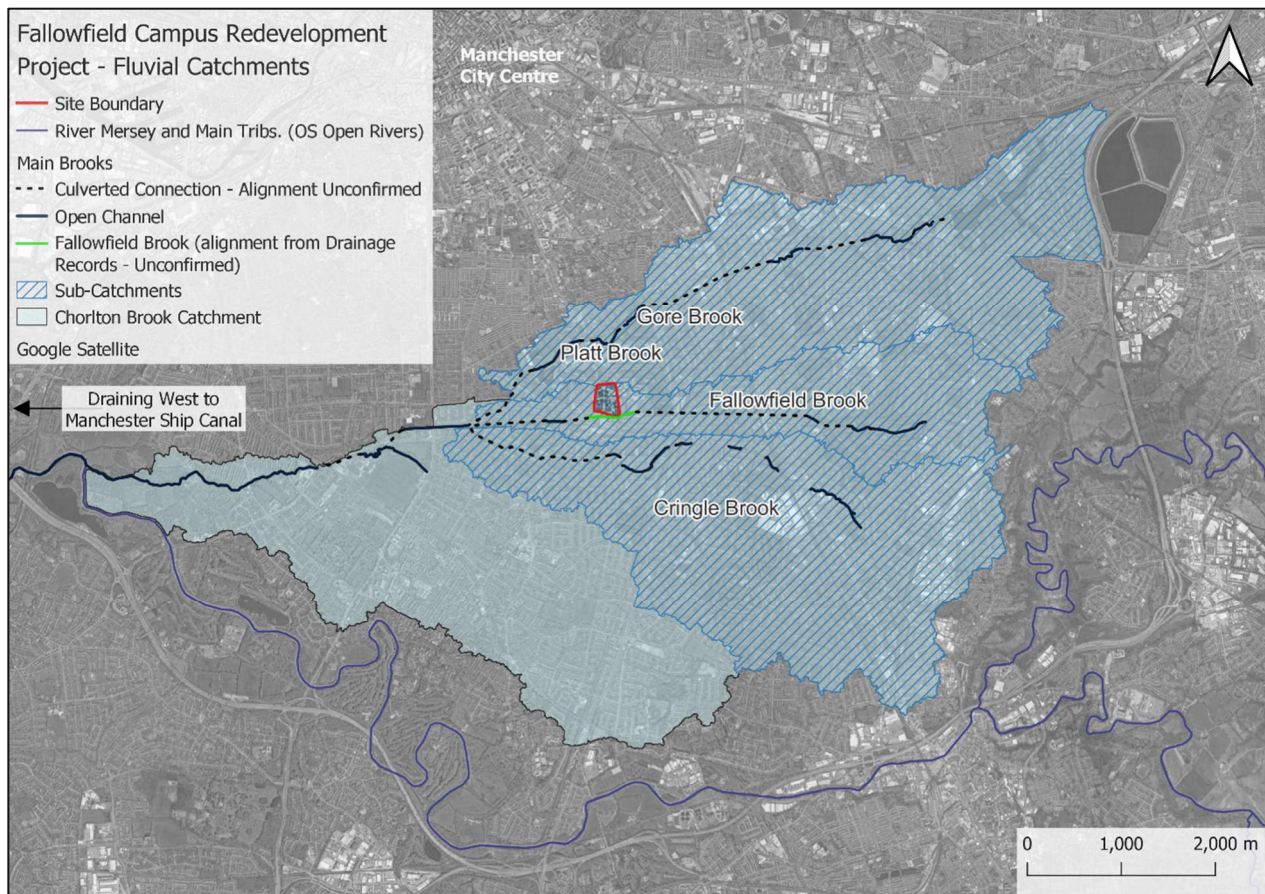


Figure 4-1 – Approximated Fluvial Catchments and Routes Associated with the site

4.2.2 EA Flood Zones

Platt Brook, Gore Brook and Cringle Brook are all designated as statutory Main Rivers. Developments likely to impact the watercourses are therefore of marked interest to the EA and have been represented within the EA Flood Zones maps.

Fallowfield Brook does not hold Main River status and is therefore under lead responsibility of the LLFA, MCC, as an Ordinary Watercourse. Flood risk from some Ordinary Watercourses are accounted for by the EA's Flood Zone mapping however, the risk of flooding from Fallowfield Brook doesn't appear to have been included in the EA's Flood Zone maps.

It can be seen from Figure 4-2 that the site is located entirely within Flood Zone 1 and is anticipated to be at a very low risk from fluvial flooding from the designated Main Rivers closest to the site.

Flood Zone 1 is defined as areas having a risk of fluvial flooding lower than 0.1%AEP, excluding the impact of climate change.

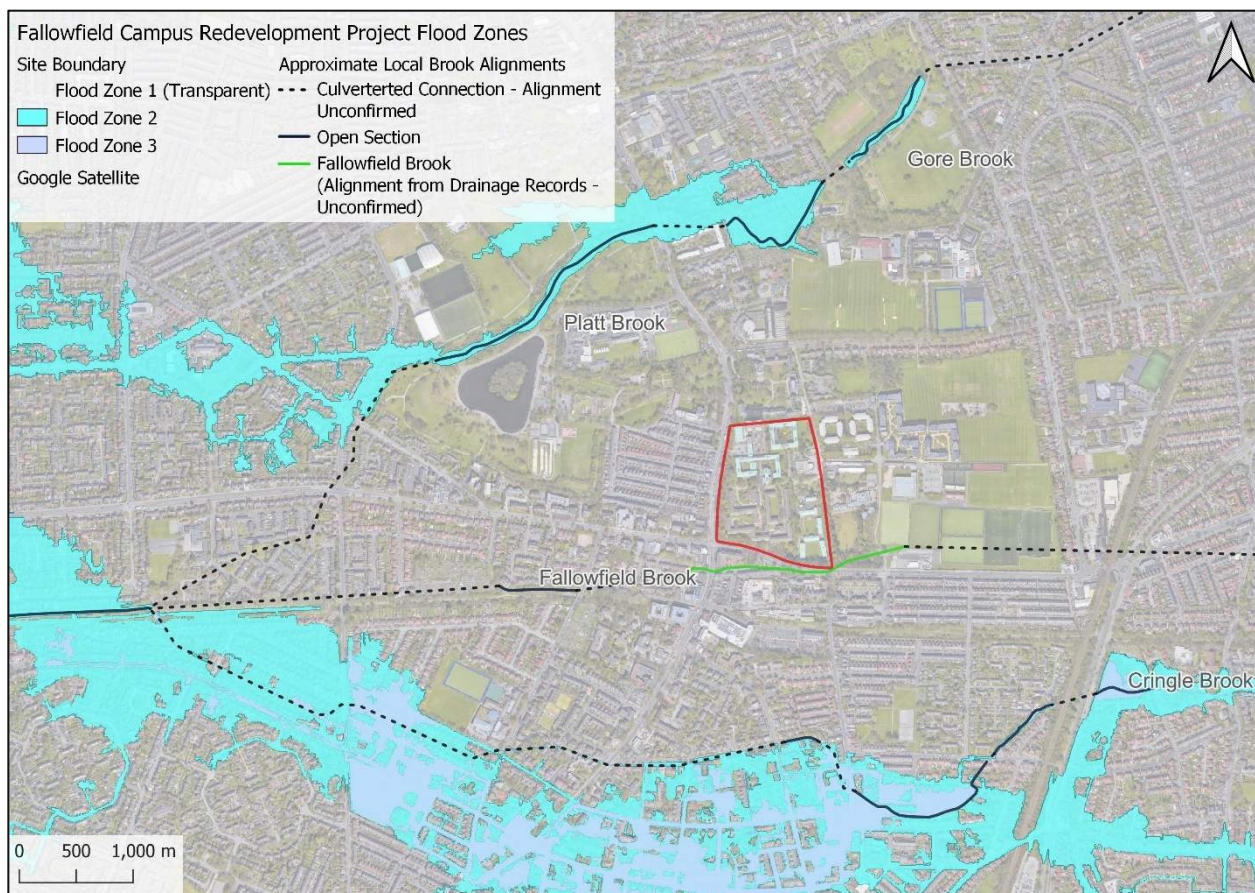


Figure 4-2 - EA Flood Zones in the vicinity of the site. The site is located entirely within Flood Zone 1

4.2.3 EA Flood Vulnerability

An assessment of flood risk to any development should be comprised on both an assessment of the severity of the flood hazard and the vulnerability of the proposed land use to risk from flooding. The proposed land use for the proposed development is primarily a continuation of the general use of the site for student accommodation.

A summary of the proposed land uses is provided in Table 4-1 with vulnerability classifications assigned in accordance with the flood risk vulnerability typologies in MHCLG Planning Practice Guidance for Flood Risk. The classification of typologies is provided in Table 6-1 of Appendix A.

Table 4-1 – Proposed Land Uses

Proposed Use	Vulnerability Classification	Units/Areas
Sui Generis – Purpose Built Student Accommodation (PBSA)	More Vulnerable	c. 3,300
Class F1a – ‘Learning and non-residential institutions’	More Vulnerable	Part of up to 4,500 sq m for Ancillary Uses
Class E(a) – ‘shop other than the sale of hot food’	Less Vulnerable	Part of up to 4,500 sq m for Ancillary Uses

Class E(b) – ‘food and drink mostly consumed on the premises’	More Vulnerable	Part of up to 4,500 sq m for Ancillary Uses
Class E(c) – ‘financial, professional and any other services which it is appropriate to provide in a commercial, business or service locality’	Less Vulnerable	Part of up to 4,500 sq m for Ancillary Uses
Class E(g) – office; research and development; and industrial process which is appropriate for a residential area’	Less Vulnerable	Part of up to 4,500 sq m for Ancillary Uses
Sui Generis – Drinking Establishment and Hot Food Takeaway	More Vulnerable	Part of up to 4,500 sq m for Ancillary Uses
Class E(d) – ‘indoor sport and recreation’	Less Vulnerable	Part of up to 4,500 sq m for Ancillary Uses
Class C3 – residential dwellings (supporting staff only)	More Vulnerable	c. 55 plus up to 1,200 sq m
Landscaping	Water Compatible	Exteriors
Accessible Car Parking	Less Vulnerable	c. 21
Cycle Parking	Water Compatible	c. 825

The suitability of a land use class to a site should be assessed against the EA Flood Zones for the site. A classification of the compatibility of the proposed land uses to the flood risk at the site has been carried out in Table 4-2.

Table 4-2 - Flood risk vulnerability and flood zone ‘compatibility’ – NPPF Planning Guidance (Paragraph: 079)⁵

Flood Zones	Flood Risk Vulnerability Classification				
	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a	Exception Test required	✗	Exception Test required	✓	✓
Zone 3b	Exception Test required	✗	✗	✗	✓

Key:

✓ Development is appropriate

✗ Development should not be permitted

4.2.4 Fallowfield Brook

Fallowfield Brook was identified as a ‘Lost Watercourse’ in the 2011 Level 2 MST SFRA for MCC². The brook has largely been enclosed in a culvert where it is in close proximity to the site. It is estimated from the 1984 drainage survey that the brook reaches its closest proximity to the site near the intersection of Whitworth Lane with Moseley Road, however, the accuracy of the alignment for the culverted reaches of Fallowfield Brook is unconfirmed.

The nearest open section of the brook is located ~350m south-west of the site and is also downstream of the site with respect to the approximated Fallowfield Brook catchment. The ground levels surrounding this open channel section of

the brook are ~36mAOD, which is ~3m lower than the lowest existing site levels of ~39m at the southern gate to Moseley Road. Therefore, it is not expected that flood water could reach the site from this open section.

Upstream of the site, the nearest open channel section of Fallowfield Brook is located adjacent to Pullman Close ~2km east of the site. The principal risk from open channel sections upstream of the site within the Fallowfield Brook catchment is from surface runoff not being able to enter the watercourse due to the capacity of the brook being exceeded. It is deemed appropriate to assess the flood risk posed by Fallowfield Brook from the EA's Surface Water Flood Maps for the following reasons:

- Fallowfield Brook has a small catchment of ~450ha. with inflows to the brook understood to be sourced from surface water runoff.
- The EA's Surface Water Flood Maps provide limited account for flow conveyance through the brook, particularly in culverted sections, thus simulating the impact of the brook capacity being exceeded.

However, there remains an additional risk of manholes on the culverted sections of the brook being surcharged and causing local flooding.

4.3 Artificial Sources of Flood Risk (Reservoirs & Canals)

Reservoir flooding can occur due to the following conditions:

- When water levels in the reservoir exceed the constructed bank levels due to an unplanned imbalance between inflow and outflow rates causing water to overtop the reservoir spillway/banks in an uncontrolled manner and cause downstream flooding;
- In the extreme event of a catastrophic failure of a water retaining structure, resulting in flooding downstream of the breached/collapsed structure.

Approximately 4-6km to the east of the site are located five drinking water storage reservoirs presently operated by United Utilities:

- Gorton Lower Reservoir
- Gorton Upper Reservoir
- Audenshaw No. 1 Reservoir
- Audenshaw No. 2 Reservoir
- Audenshaw No. 3 Reservoir

The reservoirs are located within the sub-catchment of Gore and Platt Brook and therefore, any catastrophic failure of the reservoirs could result in flood flows near the site. The expected flood extents from a failure of any of the individual reservoirs has been mapped by the EA in a combined flood extent.

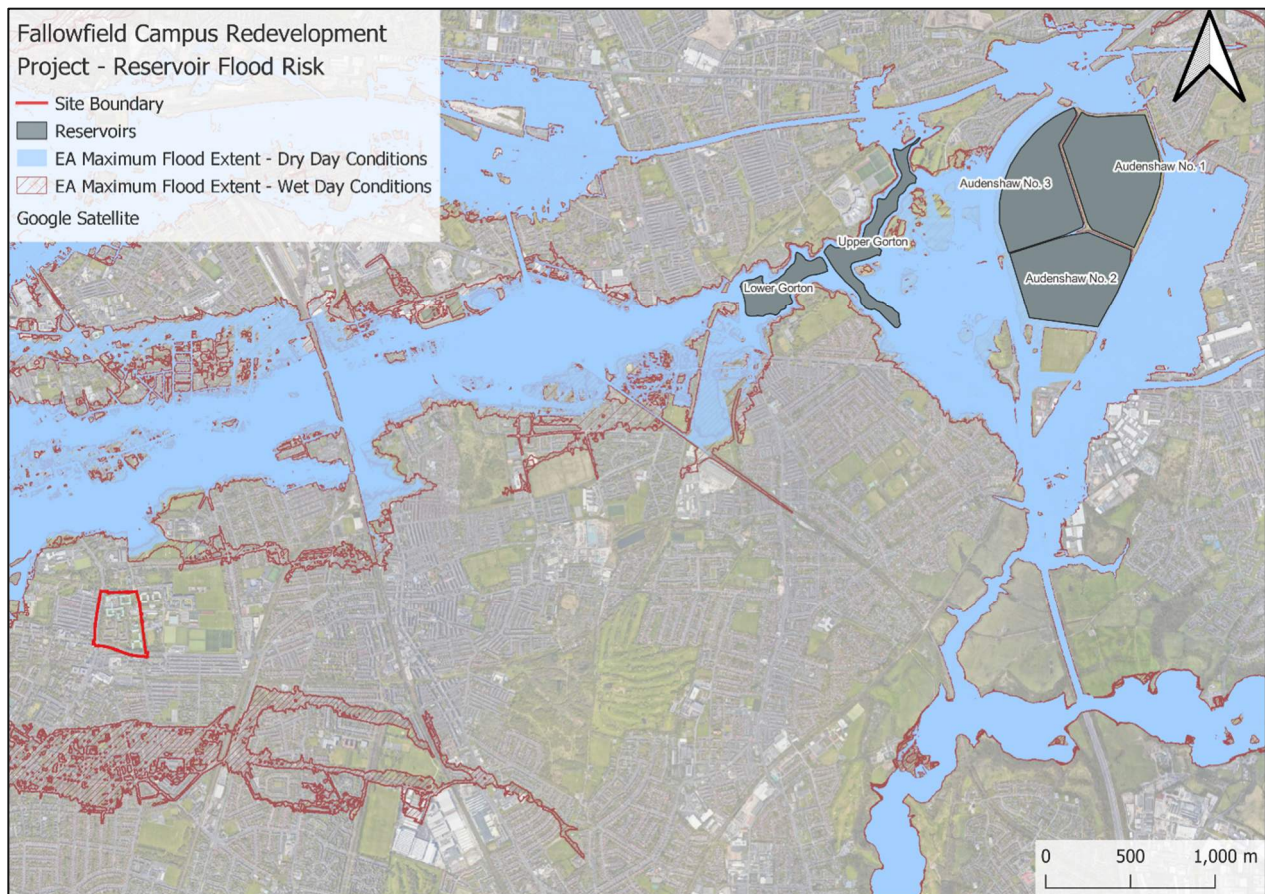


Figure 4-3 – Reservoir Flood Risk

It can be seen that the site is located outside the modelled extent for reservoir flooding and therefore, the site is expected at low risk of flooding from reservoirs.

The closest canal to the site is understood to be Ashton Canal ~5km north-west of the site. The canal is located outside of the Chorlton Brook catchment and is therefore, not expected to pose a flood risk to the site.

4.4 Surface Water (Pluvial) Flood Risk

Surface water flooding occurs when intense rainfall is unable to naturally soak into the ground due to impermeable ground covering such as concrete or tarmac, or low permeability ground conditions preventing infiltration. This excess surface water can flow through built-up areas and open space and pond in lower-lying areas causing localised flooding.

In the 2011 Level 2 SFRA for MCC², Levenshulme and Fallowfield in which the site is located, was identified as a Critical Drainage Area (CDA) with strategic goals set for the management of flood risk. The designation remains distinct from the EA's Areas with Critical Drainage Problems (ACDP) and was raised by the SFRA for consideration at the LLFA level. The area was designated as a CDA due to historic flooding in the area, stated in the SFRA to likely be the result of flooding from watercourses and due to surface water mapping for the area showing a significant surface water flood risk hotspot in Levenshulme.

The EA provide Surface Water flood risk maps for flood depths, velocities and extents for 3.3%, 1% and 0.1% AEP events. However, no climate change allowance is accounted for in the mapping. Flood extents from the EA's mapping are provided for the site in Figure 4-4.

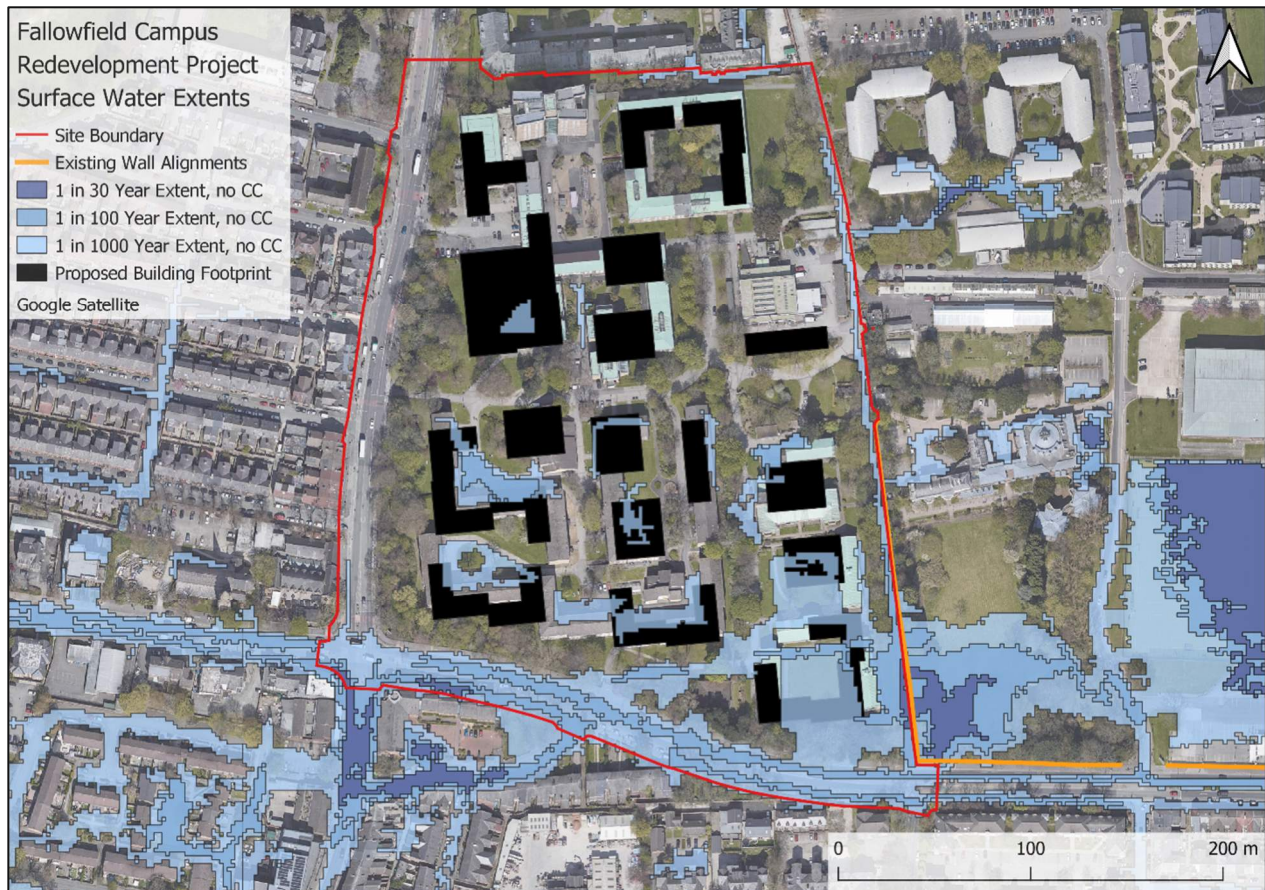


Figure 4-4 – EA Surface Water Flood Extents for Various Modelled Storm Events

As raised in Section 3.2.3, it is required that for a 1% AEP event, the risk of a 45% Upper End increase in rainfall intensity is accounted for in assessment of surface water flood risk to the site. No modelling of the impact of climate change on surface water risk to the site has been carried out to date and the rainfall depths applied to generate the EA's Surface Water Flood Maps are presently unclear.

However, in the absence of any other evidence, assessment of rainfall depths at the site from the latest FEH22 hydrological model indicates that it is appropriate to use the EA's 0.1% AEP flood mapping as a proxy for the risk associated with a 1% AEP event with a 45% climate change allowance. This is because comparison of rainfall depths at the site in the FEH22 model for both events lead to very similar rainfall depths up to 36 hours duration.

It can be seen from Figure 4-5 below that surface water flooding modelled within the south-east of the site is originating from runoff flowing along Moseley Road before crossing in to the Armitage Sports Fields and Firs Botanical Grounds before reaching the site boundary. Once within the site, the water passes through Woolton Hall before re-joining Moseley Road.

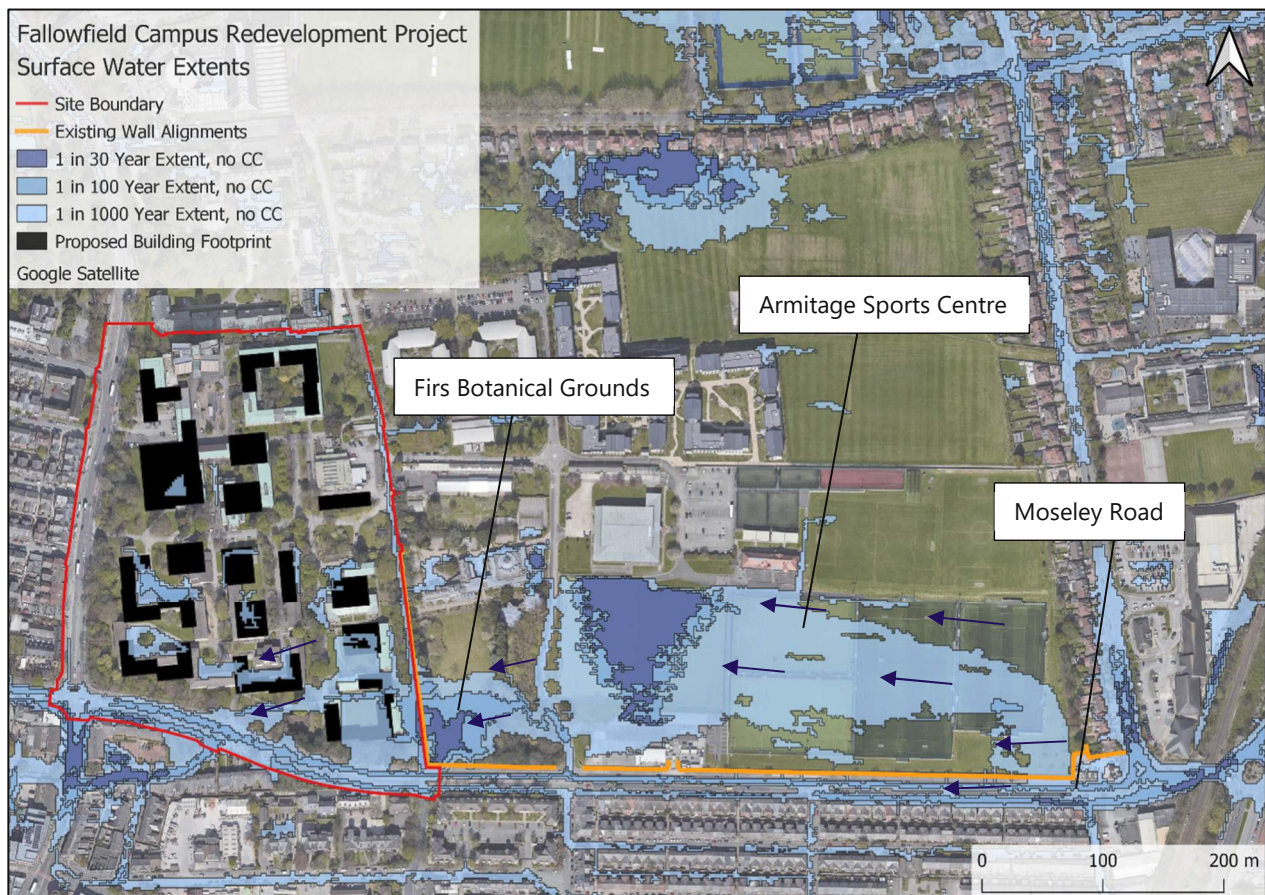


Figure 4-5 – Overview of Overland Flow Routes to the site

However, it is also observed that there is an existing brick wall of an estimated ~2m height surrounding the UoM's Fallowfield Campus, highlighted in orange in the map. It is understood that the impact of the wall on likely surface water flood flows has not been accounted for in the EA's flood map. As a result, two scenarios for surface water flood risk are considered:

1. Existing Retained - Surface water flood risk at the site with the existing brick wall in place.
2. Wall Removed – Surface water flood risk at the site with the wall removed.



Figure 4-6 – Existing Brick Wall (At Intersection of Whitworth Lane and Moseley Road) – Google Street View



Figure 4-7 - Existing Brick Wall (Looking South on Whitworth Lane)



Figure 4-8 - Existing Brick Wall (Looking East on Moseley Road)

4.4.1 Pluvial Flood Risk with Existing Boundary Wall in Place

Hydraulic modelling with the existing walls bounding the Fallowfield Campus on Moseley Road and Whitworth Lane in situ has not been carried out to date. The walls are anticipated to block overland flows from reaching the site from the east from Armitage Sports Fields and Firs Botanical Grounds.

To assess the probable flow routes with the walls in place, an assessment of existing levels has been undertaken, as shown in Figure 4-9. It can be seen that the main route by which surface water is predicted to reach the site with the walls in place is via Whitworth Lane. Flood water that reaches a depth sufficient to overtop the north kerb on Moseley Road is expected to flow north into Whitworth Lane and pond until sufficient depth is reached within the lane to overtop the existing fence footing and grass verge on the western side of the lane (shown on the right of Figure 4-7).

For the design event in the existing condition, once flows enter the site, they are predicted to flow past/through Woolton Hall residences and onwards west, back on to Moseley Road at the southern entrance to the site.

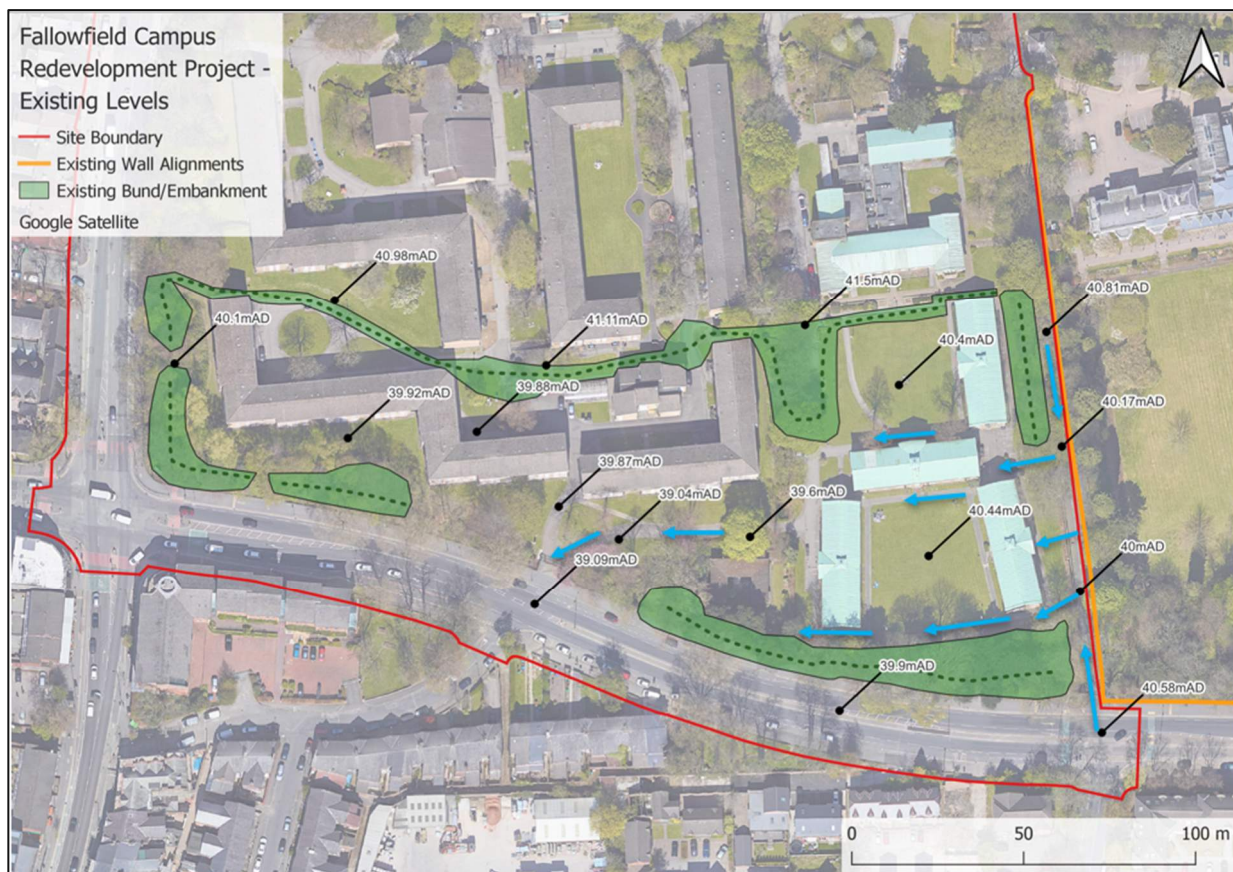


Figure 4-9 – Predicted Surface Water Flow Routes through the Site Identified by Blue Arrows based upon the Existing Walls

4.4.2 Pluvial Flood Risk without Existing Boundary Wall

The EA Surface Water Flood Maps are understood to provide an assessment of the surface water flood risk to the site without the existing boundary walls of the Fallowfield Campus along Moseley Road and Whitworth Lane.

Flood depths for the 0.1% AEP are shown below. The depths for the 0.1% AEP event have been used as a proxy for flood extents for a 1% AEP with 45% climate change allowance due to the similarity in rainfall depths for the two events in the FEH13 and FEH22 hydrological models for the site location.

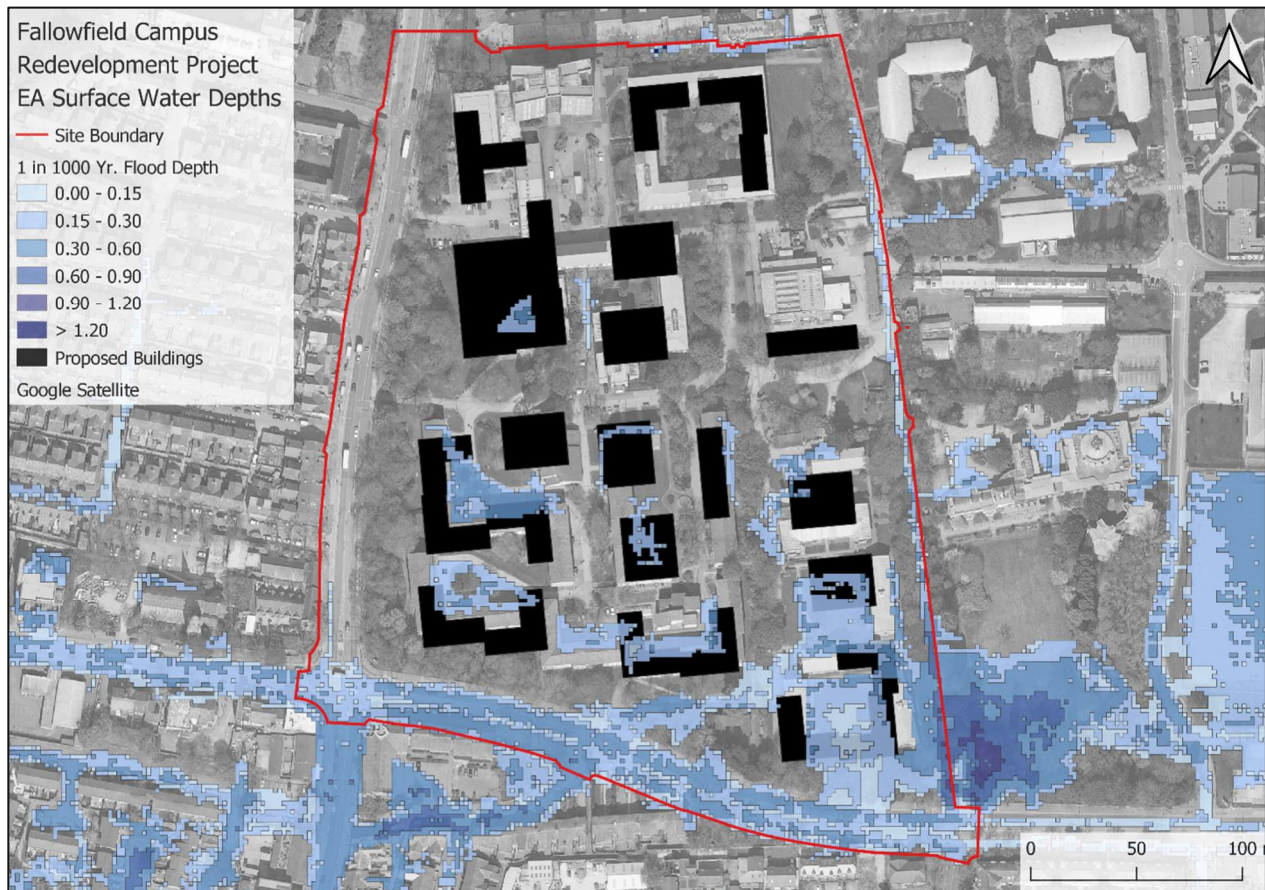


Figure 4-10 – EA Surface Water Modelled Flood Depths for a 0.1% AEP Event

4.5 Groundwater Flood Risk

Groundwater flooding generally occurs in low-lying areas above permeable rock aquifers where the water table meets, and rises above, the ground surface. Groundwater flooding can lead to:

- Flooding of basements of buildings below ground level;
- Flooding of buried services or other assets below ground level;
- Inundation of roads, commercial, residential and amenity areas;
- Flooding of ground floors of buildings above ground levels; and/or
- Overflowing of sewers and drains.

No basement levels are proposed as part of the proposed development.

The risk of groundwater flooding is challenging to assess without continuous monitoring of ground water levels at the site. A Geotechnical Investigation was undertaken for the site in April-June 2015 by Coffey Geotechnics. It was reported that groundwater levels in Made Ground were observed between 0.51m and 1.94m below ground level. It was inferred by Coffey that the groundwater in the Made Ground was resulting from locally perched water located above more impermeable strata of Glacial Till.

Groundwater flood risk was also assessed as part of the 2011 MCC SFRA². The risk of flooding from groundwater map provided in Figure 6-1 of Appendix A did not identify the site as being a key site at risk from groundwater flooding. However, the regional scope of this assessment should be emphasised, with the potential for local shallow perched ground water at the site having the potential to impact the proposed development and construction activities.

4.6 Sewer Flood Risk

Flooding from combined sewers may occur during periods of intense rainfall when high volumes of surface water run-off exceed the capacity of the sewer pipes and cause manholes to become surcharged, causing localised foul water flooding.

Sewer records provided by United Utilities on 25/04/2023 show combined sewers present on Whitworth Lane, Moseley Road and Wilmslow Road adjacent to the site, as shown in Figure 6-3 in Appendix A. Flooding from surcharge of manholes on Wilmslow Road or Moseley Road is unlikely to find its way to the site due to the presence of bunds adjacent to Moseley Road and lower levels on Wilmslow Road compared with the existing site levels.

Flooding from Whitworth Lane resulting from surcharging of manholes could enter the site if water ponds to a sufficient depth to overtop the existing grass verge on the western side of the lane.

Flooding could be possible from on-site networks if the receiving off-site networks are over capacity at the time of the discharge. The locations and capacities of the existing connection points are not currently known.

4.7 Historic Flooding

A historic event during 2004 in Fallowfield was recorded in the 2008 Association of Greater Manchester Authorities (AGMA) SFRA Appendix B⁹. The event, stated to have occurred in 'Chorlton Brook, Manchester University, Fallowfield', was attributed to Fluvial, Pluvial and Sewer flooding. It was stated that 'flooded halls of residence and homes' were reported in a Manchester Evening News Article. A search for the article or any other details relating to the event in archived material has not yielded any results to date and it is unknown whether the student halls of residence mentioned were those on the site at Fallowfield Campus.

Consultation with MCC, the LLFA on 08/06/2023 also revealed that a Flood/Drainage incident was recorded on Whitworth Lane between 15/01/2020 and 11/08/2021 which was stated to be due to a 'Blocked Gully or Drain' as referenced in correspondence in Appendix B.

⁹ Scott Wilson, June 2008. Strategic Flood Risk Assessment for Greater Manchester: Sub-regional Assessment. AGMA.

5 Proposed Flood Mitigation

It was identified from the flood appraisal that the principal flood risk to the site is from surface water (pluvial) flooding. The proposed mitigation strategy to manage this risk is outlined in the following sections.

5.1 Drainage Strategy

A surface water drainage system is proposed to be provided to collect surface water runoff from the following:

- Primary runoff will be from hard impermeable surfaces such as roofs and any exposed areas of hardstanding.
- Allowance will be made to include green areas that may fall towards the buildings, particularly where infiltration is not viable in the proposed development.

The system is proposed to be designed to manage surface water runoff up to a 1%AEP event with a 45% allowance for increases in rainfall intensity due to climate change.

The aspiration for all new development is to reduce surface water runoff rates to the equivalent greenfield rate (Qbar). In order to achieve this reduction in discharge rate it is typically necessary to provide stormwater storage in the form of an attenuation basin, buried tank or similar. Guidance issued by MCC, in its capacity as the LLFA, acknowledges that such significant reductions in discharge rate may not be achievable on previously developed sites where the necessary attenuation volumes cannot be accommodated.

The strategy for the management of surface water, post-attenuation has been prepared based upon a drainage hierarchy for discharge to the following in order of priority:

- To an adequate soakaway or some other adequate infiltration system; or, where that is not practicable,
- A watercourse; or, where that is not practicable,
- A surface water sewer; or, where that is not practicable,
- A combined sewer.

With reference to the drainage hierarchy, the drainage strategy has been presented as a suite of options as it has not been feasible to obtain the necessary surveys to assess the feasibility/effectiveness of each option prior to submission of the outline planning application.

- **Option 1 – Discharge to Soakaway**

In line with the drainage hierarchy it is preferable to discharge surface water via soakaway or other infiltration systems where possible. It is proposed to discharge surface water via engineered soakaways at various locations throughout the site, where proximity to building footprints and other constraints permit.

- **Option 2 – Discharge to Fallowfield Brook**

If further investigations indicate infiltration is not viable, discharge to the Fallowfield Brook watercourse located to the south of the site will be considered in line with the drainage hierarchy. As discussed with the LLFA, surface water from the proposed development will be attenuated to restrict discharge to the Fallowfield Brook at greenfield runoff rates.

- **Option 3 – Discharge to Combined Public Sewer Network**

In line with the drainage hierarchy, if discharge via infiltration or to a watercourse is not feasible, surface water from the site will discharge to the public sewer network. The site is surrounded by an

extensive network of combined public sewers which are understood to currently serve the existing development. It is proposed to retain the existing connections to the public sewer network where possible. In line with the MST SFRA (2011)², the proposed development will discharge at 50% of the existing brownfield runoff rate.

5.1.1 Stormwater Attenuation

Please refer to calculations provided in the Drainage Strategy which has been submitted with the planning application.

5.2 Wayleave for Surface Water Flows

In order to manage overland runoff entering the site from Whitworth Lane, it is proposed to introduce a wayleave (an area free from development or obstructions) through the south-east of the site, as indicated by the yellow alignment in Figure 5-1.

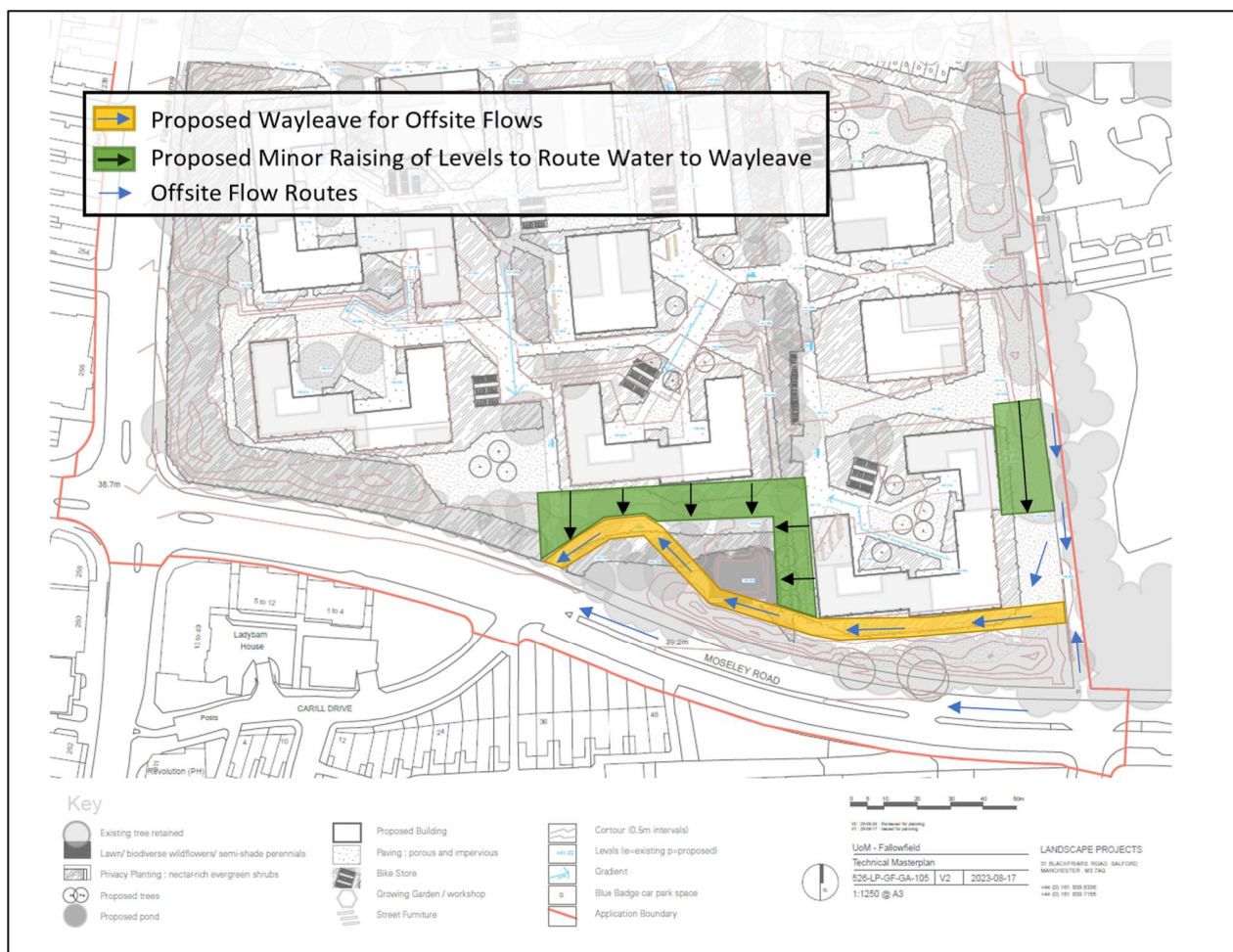


Figure 5-1 – Proposed Wayleave for Off-Site Surface Water Flows Overlaid on Excerpt from Technical Masterplan, Landscape Projects

A preliminary wayleave of ~4m width should be allowed for to ensure that overland flow will flow unobstructed from the east to Moseley Road in the west (as shown in Figure 5-1). This can be achieved by ensuring that any proposed

building in the southeast corner is shifted north compared to the existing building. The proposed building shown in the illustrative masterplan allows for the ~4m wayleave.

The wayleave would be landscaped to provide a flow route for surface water through the site between Whitworth Lane and Moseley Road away from the proposed building location. The hydraulic performance of the wayleave should be confirmed at the reserved matters stage.

It is also proposed that the grass verge on the western side of Whitworth Lane near the existing bike shed is raised by ~200-300mm in order to help route surface water flows entering the site from Whitworth Lane through the proposed wayleave route rather than initially spreading north.

5.3 Finished Floor Levels (FFLs)

The primary mitigation method proposed for managing surface water flood risk is raising the proposed finished floor levels for buildings above the predicted flood depths for the design event. Due to a confirmed option for the drainage strategy not having been established at this stage, proposed FFLs have been provided for the proposed development for the following cases:

- FFLs with the drainage strategy fully implemented (i.e. surface water runoff originating from on-site will be prevented from causing ponding within the site boundary for events up to the DFE)
- FFLs if the drainage strategy is not fully implemented (i.e. surface water runoff originating from on-site could result in ponding in line with the EA 1 in 1000 year surface water map within the site boundary for events up to the DFE)

5.3.1 FFLs With Drainage Strategy Implemented

Proposed FFLs for the case where the drainage strategy has been fully implemented are provided below. It has been proposed that all buildings are raised by at least 300mm above the proposed exterior levels with ground levels proposed to slope away from the proposed buildings to prevent localised ponding of surface water adjacent to the buildings.

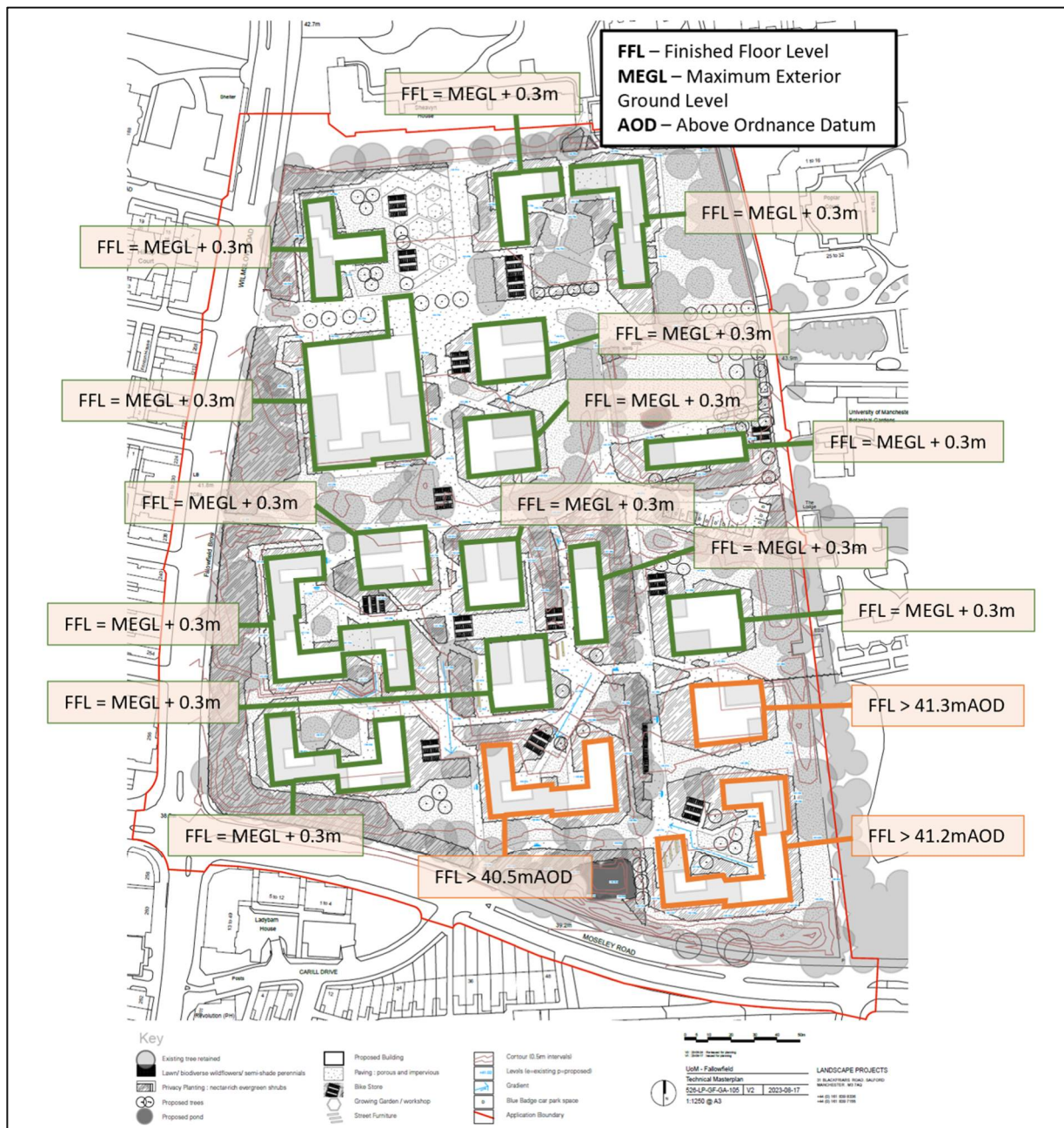


Figure 5-2 - Proposed Finished Floor Levels for the Proposed Development with the Drainage Strategy Fully Implemented Overlaid on Technical Masterplan, Landscape Projects

5.3.2 FFLs Without Implementation of Drainage Strategy

If the proposed drainage strategy is not fully implemented and on-site runoff up to the 1% AEP event with 45% climate change allowance is not intercepted, the following FFLs would be required. It has been proposed that all buildings are raised by at least 300mm above the proposed exterior levels with ground levels proposed to slope away from the buildings to prevent localised ponding of surface water adjacent to the buildings.

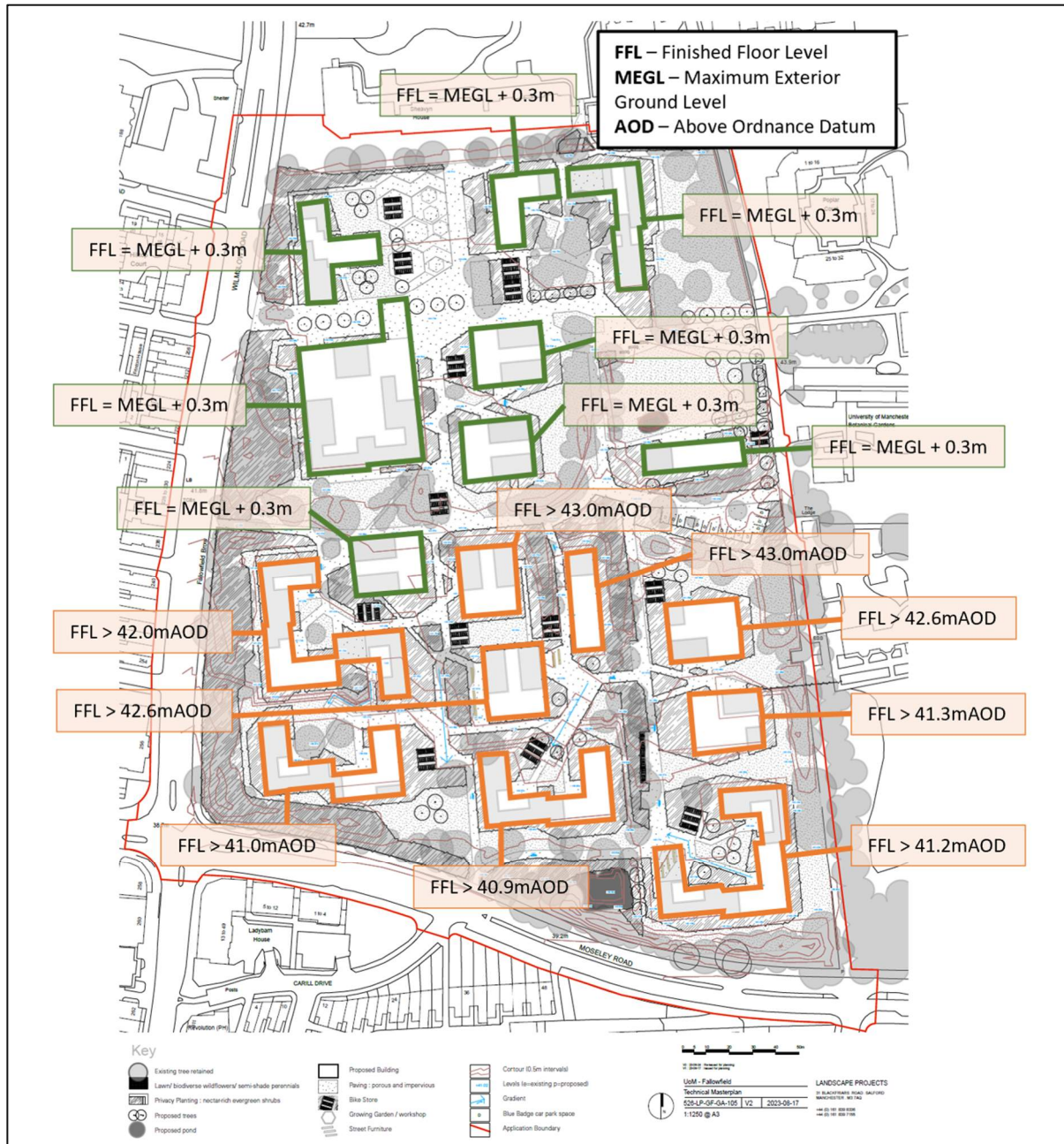


Figure 5-3 - Proposed Finished Floor Levels if the Drainage Strategy is not Fully Implemented Overlaid on Technical Masterplan, Landscape Projects

6 Summary

The site is located in its entirety within the EA Flood Zone 1. Flood risk from flow exceedance of Fallowfield Brook has been assessed through analysis of Surface Water Flood Maps. The site has been shown to be located outside the EA modelled flood envelope for reservoir risk. Shallow perched groundwater is understood to be located below the site with the potential that the ground could become saturated and cause localised flooding during wet periods. It is recommended that this risk is studied as part of the building structural designs for the site.

The principal risk to the site has been identified to be from surface water flood risk. Off-site flows are predicted to impact the south-east of the site at the present location of Woolton Hall. Flood flows are predicted to enter the site from the east via Whitworth Lane and flow through the site back to Moseley Road at the southern entrance to the site.

The proposed drainage strategy is to intercept surface water runoff originating from on-site up to the 1% AEP event with 45% climate change allowance. To provide mitigation from off-site flows, it has been proposed that a surface water flow wayleave is provided at the south-east of the site. To provide protection against localised surface water ingress from on-site runoff, it has been recommended that all FFLs are raised at least 300mm above the exterior level. Where proposed buildings are also impacted by off-site flows at the south east of the site, it has been recommended that the FFL is also raised above the 0.1% EA Surface Water Flood Map water level with a 300mm freeboard allowance.

Appendix A – Additional Information

Table 6-1 – Flood Vulnerability Classification – NPPF Planning Guidance

Classification	Typologies
Essential Infrastructure	○ Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. ○ Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including infrastructure for electricity supply including generation, storage and distribution systems; including electricity generating power stations, grid and primary substations storage; and water treatment works that need to remain operational in times of flood. ○ Wind turbines. ○ Solar farms.
Highly Vulnerable	○ Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding. ○ Emergency dispersal points. ○ Basement dwellings. ○ Caravans, mobile homes and park homes intended for permanent residential use. ○ Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure'.)
More Vulnerable	○ Hospitals ○ Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. ○ Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. ○ Non-residential uses for health services, nurseries and educational establishments. ○ Landfill* and sites used for waste management facilities for hazardous waste. ○ Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.
Less Vulnerable	○ Police, ambulance and fire stations which are not required to be operational during flooding. ○ Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure. ○ Land and buildings used for agriculture and forestry. ○ Waste treatment (except landfill* and hazardous waste facilities). ○ Minerals working and processing (except for sand and gravel working). ○ Water treatment works which do not need to remain operational during times of flood. ○ Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place. ○ Car parks.
Water Compatible	○ Flood control infrastructure. ○ Water transmission infrastructure and pumping stations. ○ Sewage transmission infrastructure and pumping stations. ○ Sand and gravel working. ○ Docks, marinas and wharves. ○ Navigation facilities. ○ Ministry of Defence installations.

	○ Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. ○ Water-based recreation (excluding sleeping accommodation). ○ Lifeguard and coastguard stations. ○ Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. ○ Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.
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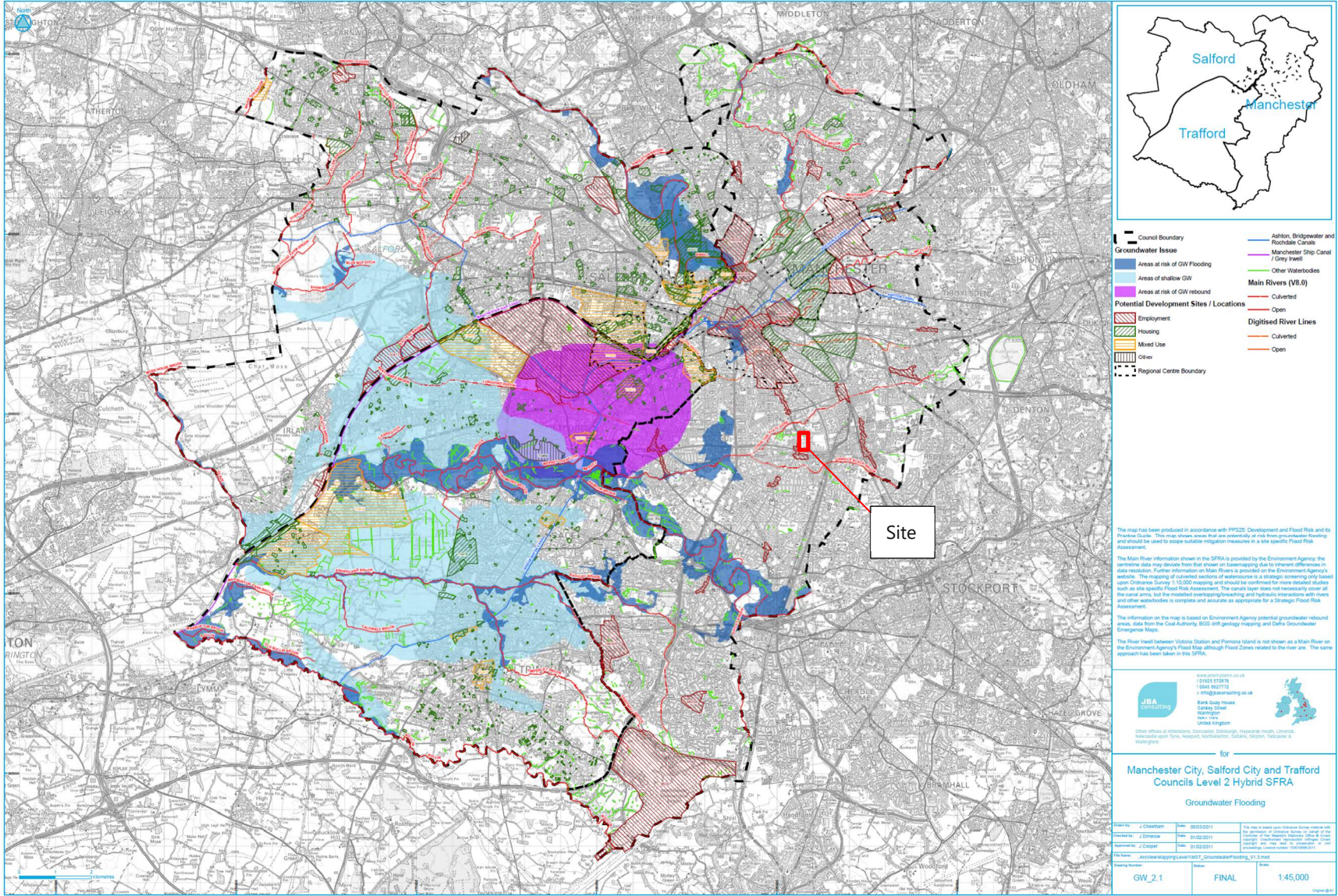


Figure 6-1 - 2011 Level 2 MST SFRA - Ground Water Flood Risk Map



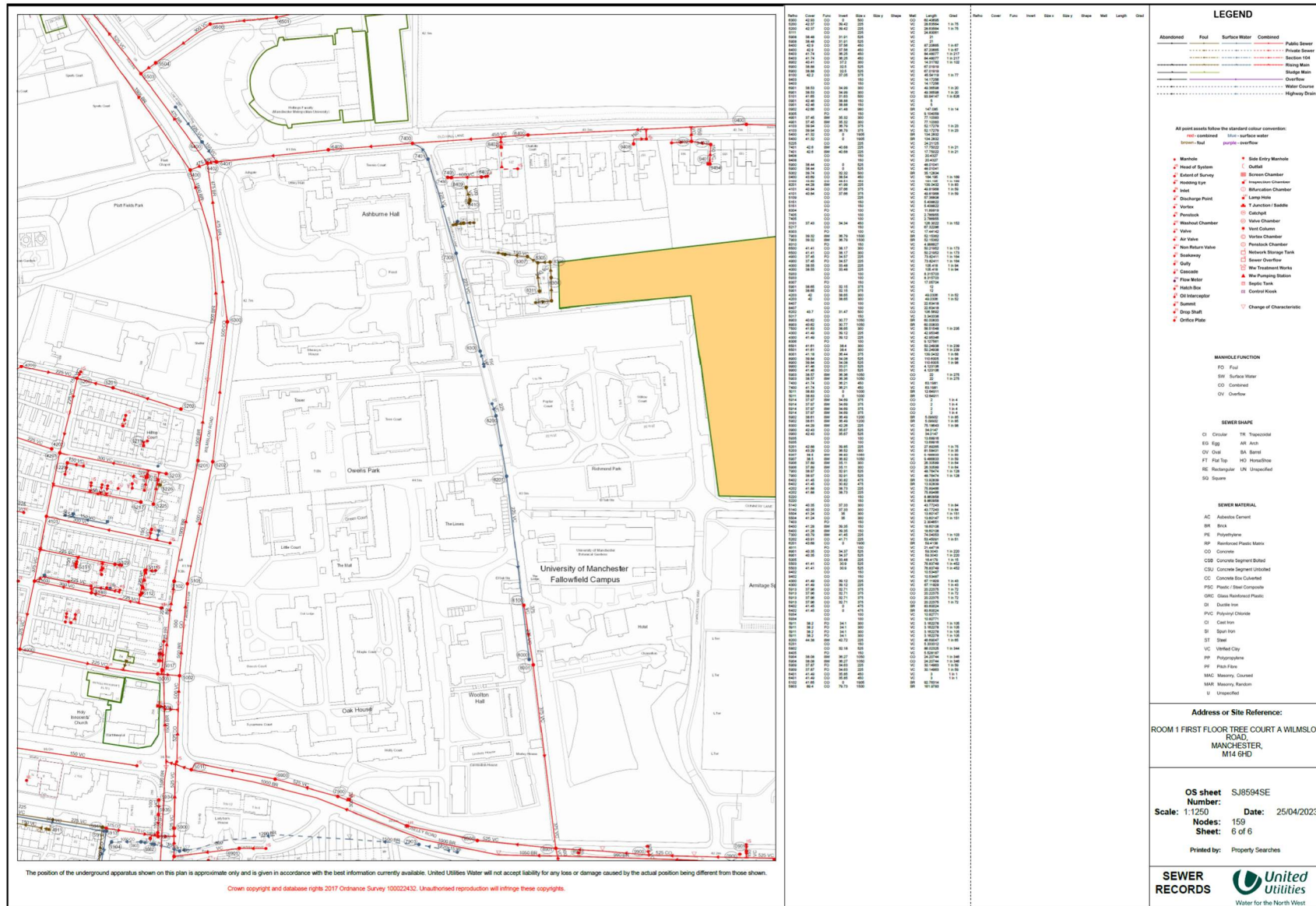


Figure 6-3 - United Utilities Sewer Record (25/04/2023)

UoMF-BH-XX-XX-RP-CW-0001

Flood Risk Assessment

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Revision P02

29 August 2023

Appendix B - LLFA Consultation



**MANCHESTER
CITY COUNCIL**

Lead Local Flood Authority

Highways Service
Growth and Neighbourhoods Directorate
Manchester City Council
PO Box 532
Town Hall
Manchester
M60 2LA

Email: floodriskmanagement@manchester.gov.uk

DATE 08/06/2023

Dear Sir or Madam,

RE: Our Ref: MCC008/06/2023

We acknowledge with thanks your payment received on 02/06/2023 for our LLFA data screen service.

Please find enclosed plan showing the results of the data screen. The position of features shown on this plan is approximate only and is given in accordance with the best information currently available.

The enclosed plan cannot be used to substitute a competent site investigation.

The enclosed plan is being provided to you subject to Manchester City Council's terms and conditions which are shown attached.

I trust the above meets your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter, please do not hesitate to contact us.

Yours Faithfully,

A handwritten signature in black ink, appearing to read 'Laura Peacock'.

Laura Peacock, Flood Risk Engineer, Lead Local Flood Authority

TERMS AND CONDITIONS – LLFA DATA SCREEN

These provisions apply to LLFA data supplied by Manchester City Council (“MCC”).

TERMS AND CONDITIONS:

- This data Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- MCC has taken all reasonable care to compile this data Map. This data Map and any information supplied with it is provided for general guidance only and MCC makes no representation, undertaking or warranty of any kind as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position of any culverted assets shown on the data Map are approximate only. MCC strongly recommends that a comprehensive site investigation is undertaken in addition to reviewing this data Map to determine and ensure the precise location of any assets. The exact location, positions and depths should be obtained by an appropriate survey which may include but shall not be limited to GPR and CCTV.
- The data screened may be modified over time without notice and therefore this data Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the data Map have been made subsequent to issue and prior to any works being carried out.
- This data Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) or for the purpose of determining the suitability of a point of connection to discharge.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising from damages of any kind caused to assets by reason of the actual position and/or existence of assets being different from those shown on the data Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent MCC from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

DATA SCREEN SYMBOLOGY

Bridge

-  Good
-  Fair
-  Poor
-  Very Poor
-  Unknown

Trash Screen

-  Good
-  Fair
-  Poor
-  Very Poor
-  Unknown

Culvert Orifice

-  Very Good
-  Good
-  Fair
-  Poor
-  Very Poor
-  Unknown

Culvert Conduit

-  CCTV surveyed
-  Not CCTV surveyed
-  Ordinary Watercourse Conduit
-  MCC SuDS
-  MCC Flood Incident Points
-  MCC Section 19 Report
-  MCC Flood Incident Polygons
-  MCC Local Authority Boundary

Supplementary Information where available:

Critical Drainage Area – The site is within the Levenshulme Fallowfield CDA.

Flood Incidents - The nearest flood/drainage incidents on record are along the south-east site boundary Whitworth Lane, dated 15/01/2020 to 11/08/2021, described as “Blocked gully or drain”.

Culvert Conduits – The LLFA asset register indicates that the ca. 1200 dia Fallowfield Brook culverted ordinary watercourse is in close proximity to the Site (below Moseley Road). Varying routes and access chambers are shown in the asset register depending on the data source: **these are summarised below and extracts provided where possible**. Please note the exact route of the culvert has not been verified with survey by the LLFA.

Survey and Design Archive –

1984 major drainage survey: Fallowfield Brook culvert is shown highlighted blue, trending NE through Moseley Road, crossing the junction with Whitworth Lane and projecting NE under land to the N of Moseley Road.

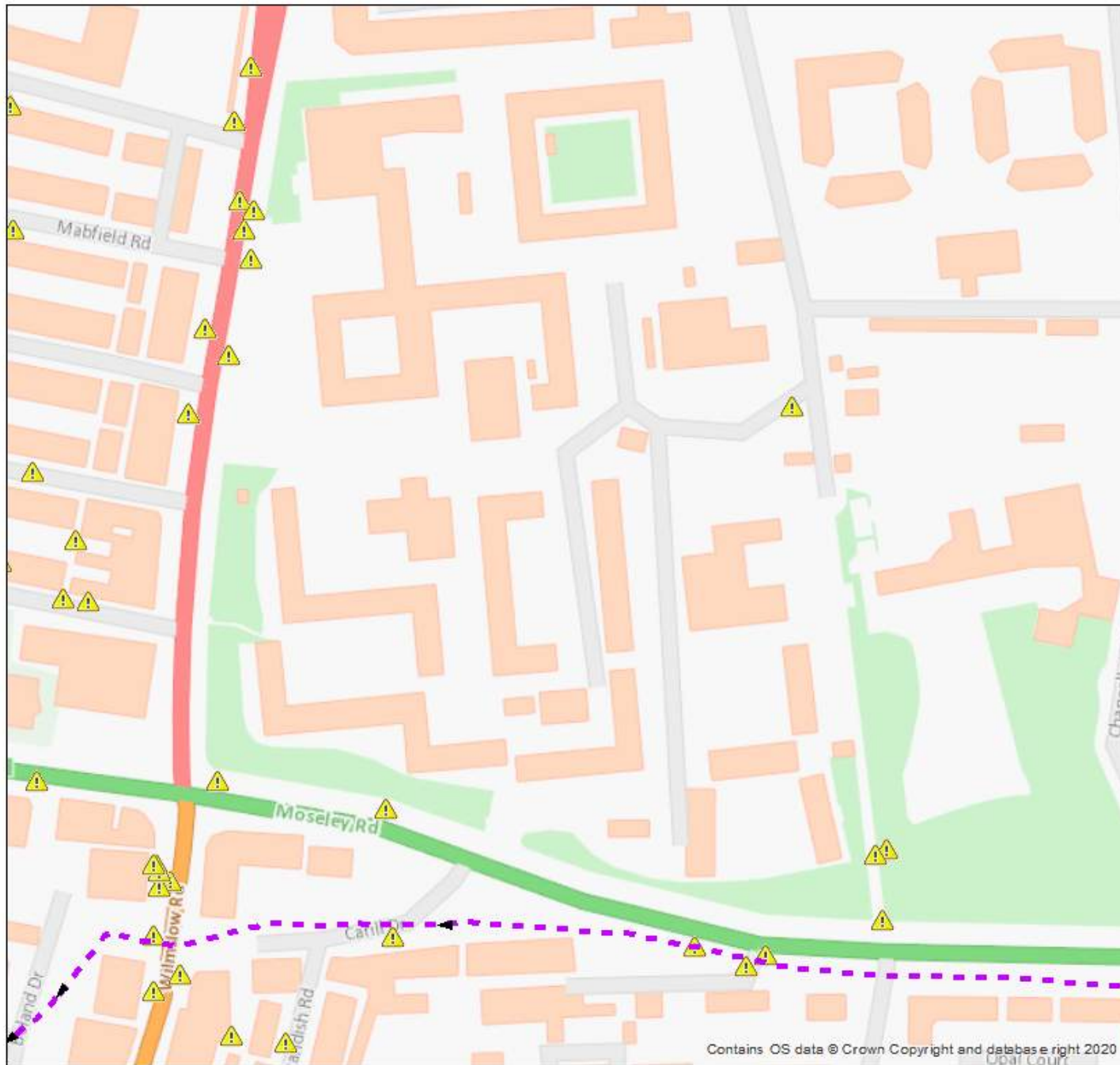
MCC structural records: Fallowfield Brook culvert sketched route beneath Moseley Road, an apparent known access chamber location & photo are attached. There may be uncharted access chambers elsewhere along the culvert; an investigation into other access chambers closer to the site should be considered by the applicant.



UU mapping; and another unverified route (purple dashed line): Shown trending beneath Moseley Road.

Any other information identified by LLFA officer during screening – The adherence to the Drainage Hierarchy - option of connection to the culverted watercourse - should be prioritised by the drainage strategy. Survey of the culverted watercourse's route, condition and capacity would be required to support any proposed connection. Land Drainage Consent from the LLFA would be required for any proposed connection.

Records indicate that the culvert runs in close proximity to the southern site boundary, but our records cannot guarantee 100% accuracy for all MCC underground assets. Due diligence should be applied during investigation of the culvert. If the culvert is found to in fact be onsite, the development proposals should take account of the culvert and MCC should be contacted immediately.



**MANCHESTER
CITY COUNCIL**

LLFA DATA SCREEN

Address/Site Ref:

Fallowfield Campus

Our Ref: **MCC008/06/2023**

Author: Manchester City Council LLFA

Date: 08/06/2023

Scale: 1:2,155

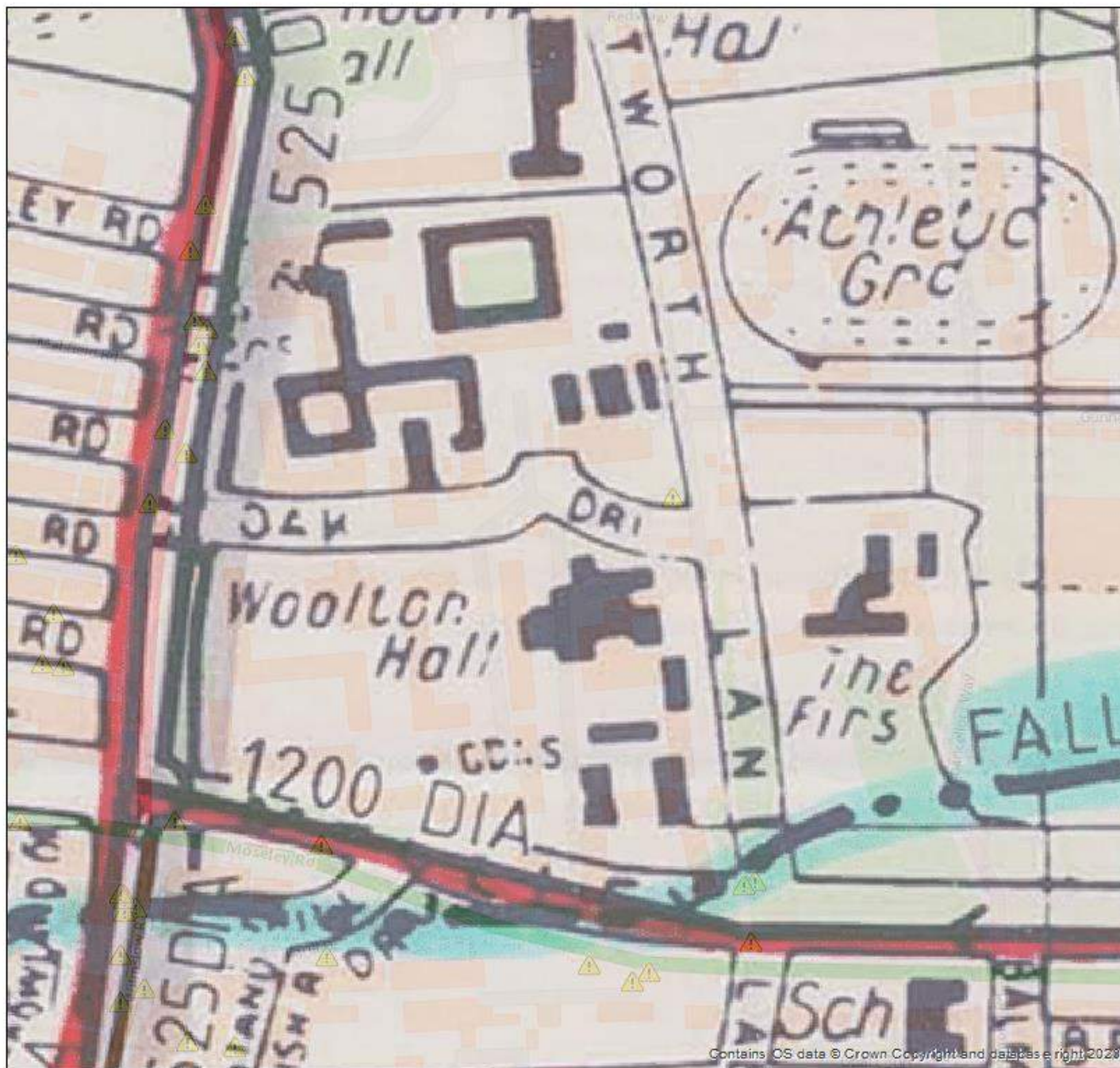
The position of features shown on this plan is approximate only and is given in accordance with the best information currently available. Manchester City Council will not accept liability for any loss or damage caused by the actual position being different from those shown.

0 15 30 60
Meters



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**MANCHESTER
CITY COUNCIL**

LLFA DATA SCREEN

Address/Site Ref:

**Fallowfield Campus
1984 Major Drainage Survey**

Our Ref: **MCC008/06/2023**

Author: Manchester City Council LLFA

Date: 08/06/2023

Scale: 1:2,500

The position of features shown on this plan is approximate only and is given in accordance with the best information currently available. Manchester City Council will not accept liability for any loss or damage caused by the actual position being different from those shown.

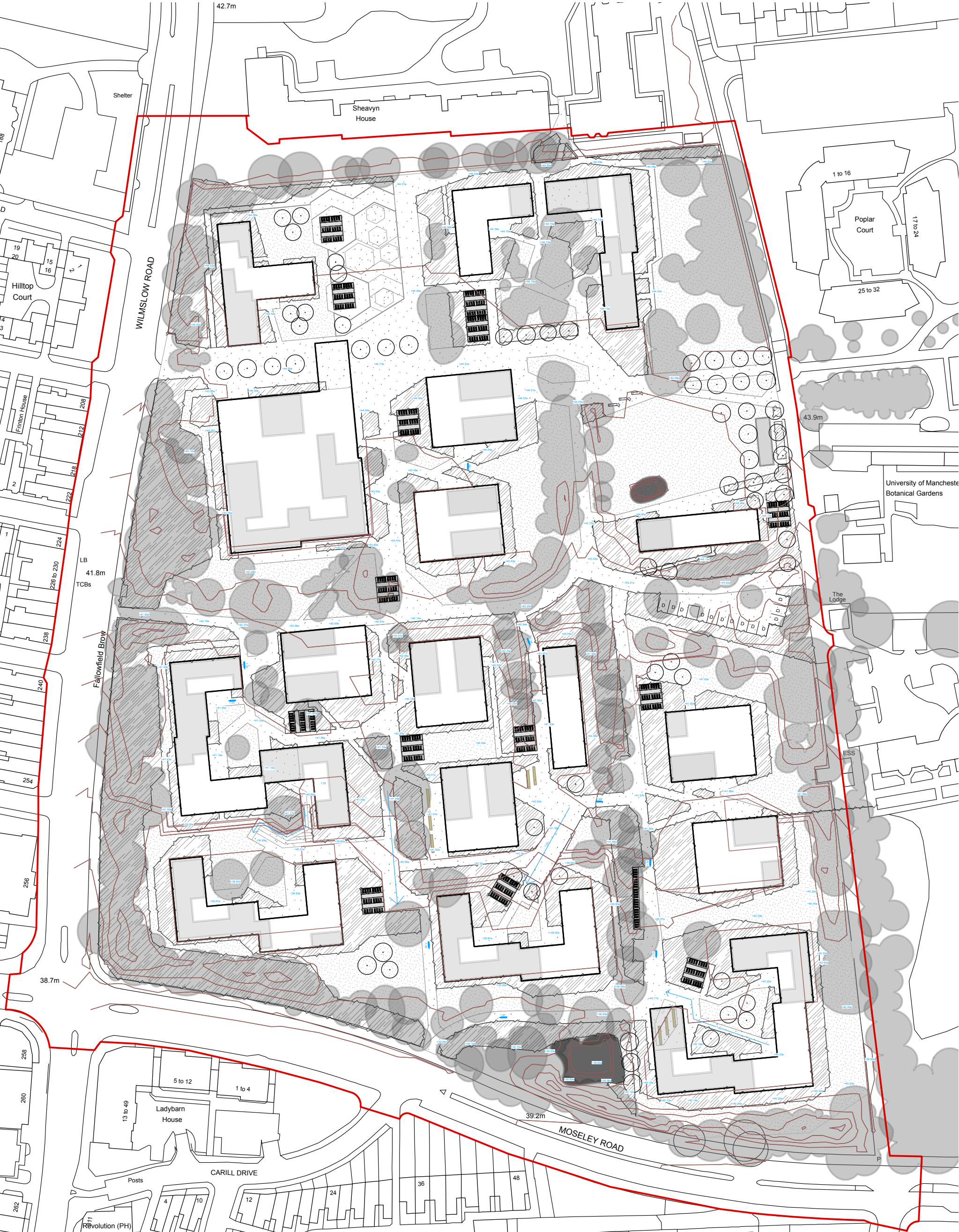
0 15 30 60
Meters



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Appendix C - Technical Masterplan

TECHNICAL MASTERPLAN



Key

- Existing tree retained
- Lawn/ biodiverse wildflowers/ semi-shade perennials
- Privacy Planting : nectar-rich evergreen shrubs
- Proposed trees
- Proposed pond
- Proposed Building
- Paving : porous and impervious
- Bike Store
- Growing Garden / workshop
- Street Furniture

- Contour (0.5m intervals)
- Levels (e=existing p=proposed)
- Gradient
- Blue Badge car park space
- Application Boundary



V2: 23-08-24 : Re-issued for planning
V1: 23-08-17 : Issued for planning

UoM - Fallowfield
Technical Masterplan
526-LP-GF-GA-105 V2 2023-08-17
1:1250 @ A3

LANDSCAPE PROJECTS
31 BLACKFRIARS ROAD, SALFORD
MANCHESTER, M3 7AQ

+44 (0) 161 839 8336
+44 (0) 161 839 7155

Dominic Nugent

17 Newman Street
London
W1T 1PD
UK

T: +44 (0)207 927 9700

F: +44 (0)870 787 4145

Email: Dominic.Nugent@BuroHappold.com