



Civic Engineers

Job Title

Campfield Market Halls

Prepared for

Allied London

Report Type

Flood Risk & Drainage Statement

Date

19 September 2023

Contents

1. Introduction.....	2
2. Existing Development.....	3
2.1 Current and Historic Use	3
2.2 Existing Drainage Characteristics	4
2.2.1 Natural Drainage	4
2.2.2 Artificial Drainage.....	5
2.3 Existing Watercourse and Waterbodies	6
3. Flood Risk Statement	8
3.1 Relevant Policy and Guidance.....	8
3.1.2 Site Specific NPPF Flood Risk Categorisation.....	9
3.1.3 Site Specific Flood Zone Compatibility	10
3.2 Tidal/ Fluvial (Rivers and Sea) Flood Risk	11
3.3 Reservoir Flood Risk	13
3.4 Groundwater Flood Risk	14
3.5 Surface Water Flood Risk	14
3.6 Sewer Flood Risk.....	16
3.7 Summary of Flood Risk	16
4. Proposed Surface Water Drainage	16
5. Sustainable Drainage Systems (SuDS) Features.....	17
5.1 Proposed Surface Water Drainage Strategy.....	19
5.2 Water Quantity	20
6. Proposed Foul Water Drainage	21
7. Conclusions.....	22

Appendices

Appendix A - Masterplans

Appendix B – Survey Information

Appendix C - BGS Infiltration Report

Appendix D – Brownfield Rate Calculations

Appendix E – Outline Drainage Strategy Draft General Arrangement

Flood Risk & Drainage Statement

Prepared by	Mairead Power
--------------------	----------------------

Reviewed by	Andrea McGee
-------------	--------------

Report Ref.	2302-CIV-XX-XX-R-C-10001
-------------	--------------------------

Issued	19/09/23
--------	----------

Revised

This report is the copyright of Civic Engineers and is for the sole use of the person/organisation to whom it is addressed. It may not be used or referred to in whole or in part by anyone else without the express agreement of Civic Engineers. Civic Engineers do not accept liability for any loss or damage arising from any unauthorised use of this report. Civic Engineers is a trading name of Civic Engineers (Leeds) Ltd (registered number 07879122), which is a limited company registered in England, registered address Carver's Warehouse, 77 Dale Street, Manchester M1 2HG

1. Introduction

This report has been prepared by Civic Engineers on behalf of Allied London, to support a planning application for the proposed internal refurbishment of two separate Market Hall buildings in Manchester, namely Upper Campfield and Lower Campfield. The two developments are using the Levelling Up Funding from the 'Culture in the City Scheme' which was appointment for projects of its kind to help transform Manchester City Centre. The proposed development comprises of refurbishing the existing internal structures to be fit for public use, with no new plot being developed upon. At current (September 2023) the Proposal Details are as follows:

Lower Campfield Market – An internal refurbishment of Lower Campfield Market. Was the former the Air and Space Hall for the Science and Industry Museum in Manchester which is now permanently closed. The proposed refurb will provide space for tech workspace and retail.

Upper Campfield Market - Internal refurbishment of Upper Campfield Market. Currently occupies design, craft, and workshop space. The proposed refurb will provide space for tech workspace and retail.

The purpose of this document is to:

- provide information on the existing site's topography and drainage,
- investigate all existing potential risks of flooding to the sites,
- consider the impact the developments may have elsewhere with regards to flooding, and
- summarise the proposed drainage strategy general arrangement, which intends to use the existing drainage network currently available for both sites.

This report is based on currently available information held by Civic Engineers. Proposals contained or forming part of this statement represent the design intent and may be subject to alteration or adjustment in completing the detailed design for this project.

The following information has been reviewed to inform this report:

- Environment Agency Online Flood mapping.
- United Utilities (UU) Asset Maps (Appendix B).
- Manchester City, Salford City and Trafford Councils Level 2 Hybrid Strategic Flood Risk Assessment (SFRA)

2. Existing Development

Both Upper Campfield Market and Lower Campfield Market are in Manchester City Centre.

The address for **Upper Campfield Market** is Barton St, Manchester M3 4NN. The National Grid Reference number is SJ 83347 97681. The approximate site area is 0.2120 ha.

The address for **Lower Campfield Market** is Lower Byrom St, Manchester M3 4FP. The National Grid Reference is SJ 83256 97807. The approximate site area is 0.4014 ha.

The two buildings forming the Campfield Market Main Works scheme both have their Southern Edge of the building sitting on Liverpool Road, which leads just off Deansgate, a main road connecting into the city centre. Lower Bytom Street sits along the Western Edge of Lower Campfield, with private access path located at the Northern Side of the building, which can be accessed by foot from Tonman Street or by car from Lower Bryton Street. Barton Street sits at the back of Upper Campfield with Tonman Street running along the North Edge. In between the two buildings is an office building for Nu-oil & Gas company.

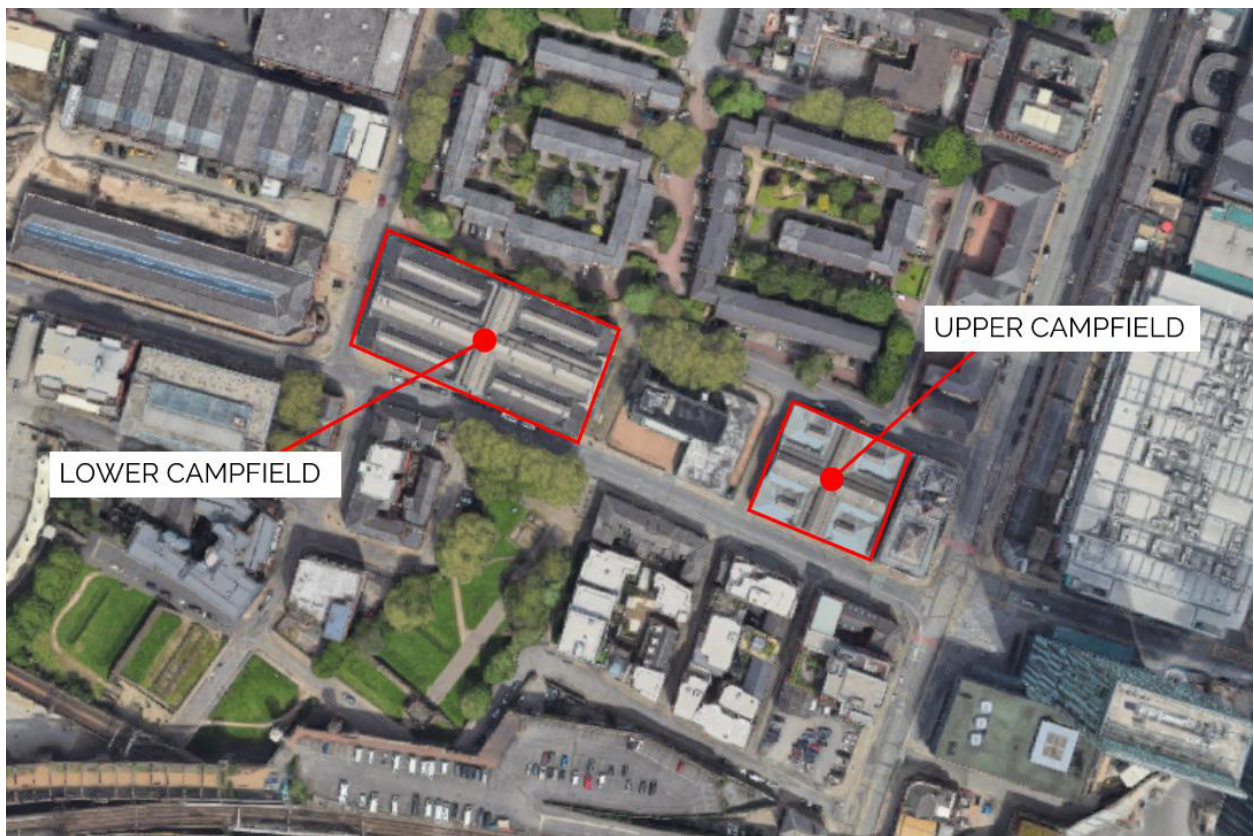


Figure 1, Overview of existing site, with approximate site boundaries shown in red.

2.1 Current and Historic Use

An illustration, seen below in Figure 2, covering both the Lower and Upper Campfield Market Halls was done by the architects Mangall and Littlewoods. This has been taken from the British Architect and Northern Engineer, dated March 1877.

The two buildings were built back in the 1870s and came as a pair, separated by St Matthew's church which has since been demolished in 1951 and replaced by an office building. The Market Halls were originally constructed as open sided 'canopied' markets. Both the Campfield Market Halls are Grade

II listed buildings meaning it is of special interest and has limitations on what can be done in terms of developments.

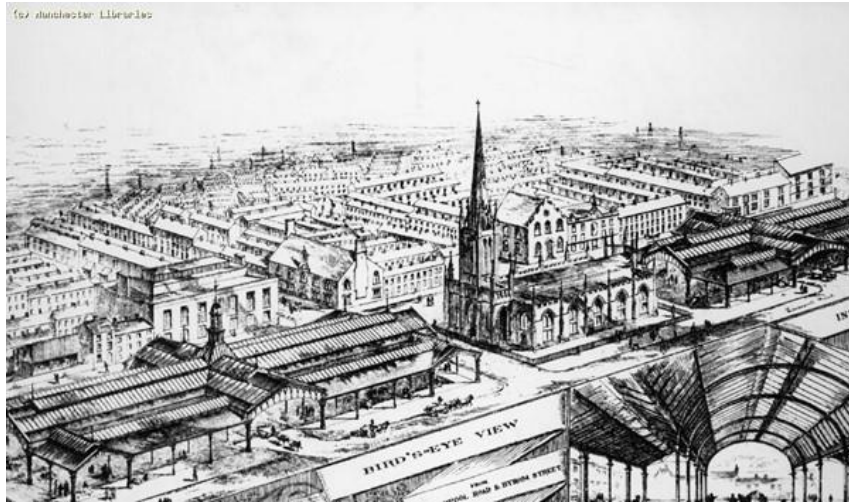


Figure 2 : Illustration of the Market Halls by architects Mangnall and Littlewoods. Reproduced with the permission of the Manchester Libraries, Information and Archives.

In 1977 Lower Campfield Market suffered damage to the eastern end of the building after a fire broke out which nearly led to the demolition of the building. But given the support of the public it was restored to home the Manchester Air and Space Museum, which was its current use from 1983 – 2020. Upper Campfield Market at current is still open and provides space for design, craft, and workshop spaces. The proposed refurbishments will provide space for tech workspace and retail.

2.2 Existing Drainage Characteristics

The existing hydrology of the site (including its topography and geology) has been analysed considering both its natural drainage characteristics as well as the changes any existing artificial drainage infrastructure has had on this natural hydrology.

This information has been developed using a topographical survey of the site carried out by ND Oliver in January and February 2022. These surveys are provided in Appendix B.

2.2.1 Natural Drainage

As stated above, ND Oliver have completed a topographical survey of the site. For Lower Campfield the survey indicates a high point of 34.06m AOD located in the southeast corner of the building and a low point of 33.14m AOD located in southwest corner of the building. This suggests a gentle slope falling in a western direction.

Similarly, the survey indicates that for Upper Campfield a high point of 35.24m AOD located in the northeast corner of the building and a low point of 34.36m AOD located in northwest corner of the building. This suggests a steeper slope, but still relatively flat, in a western direction.

The Environment Agency's (EA) Risk of Flooding from Surface Water map indicates a very low surface water flood risk within the both the building boundaries. A further assessment of surface water flood risk is presented in Section 3.5.

The British Geological Survey (BGS) Geology of Britain map has been reviewed and indicates

superficial deposits for Upper Campfield and bedrock geology for Lower Campfield as below:

- Upper Campfield Market Hall; 'Glaciofluvial Sheets Deposits, Devensian – Sand and gravel. Sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the Quaternary period.'
- Lower Campfield market Hall; 'Chester Formation - Sandstone. Sedimentary bedrock formed between 250 and 247.1 million years ago during the Triassic period.'

Figure 3 below shows an extract from the BGS Geology of Britain Map indicating where these boundaries sit and change in relation to the two buildings in question.

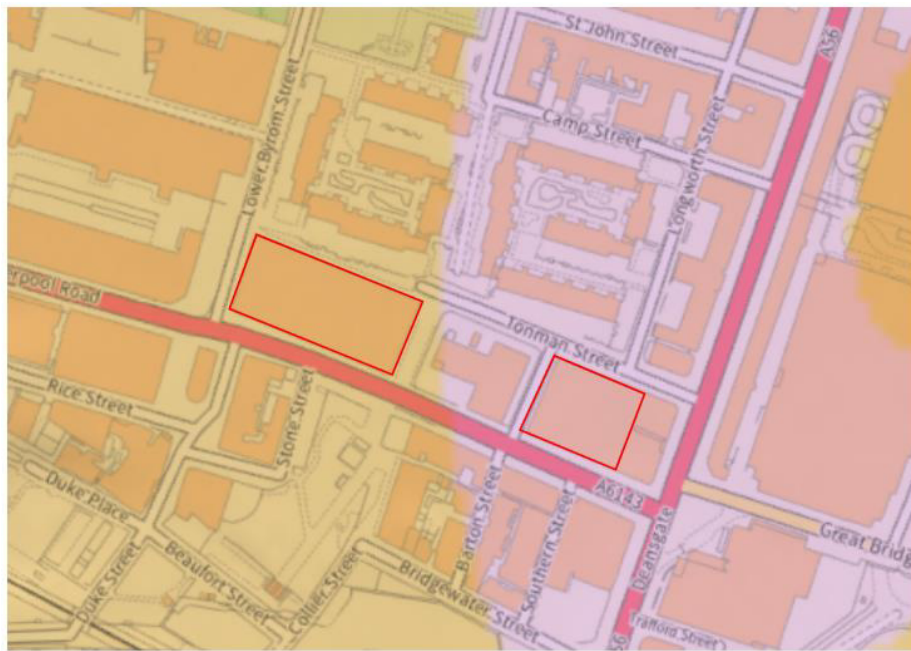


Figure 3 : Extract from BGS Geology of Britain

2.2.2 Artificial Drainage

The existing drainage network was surveyed by Drain Alert (appointed by Allied London to carry out a CCTV Drainage survey for the sites, in January and March of 2022). At current (Sept 2023) the results of the surveys for Upper Campfield are sufficient to use in some areas, however uninformative for Lower Campfield and conversations are ongoing regarding revising these surveys, to obtain missing information. The purpose the CCTV surveys are to locate the existing drainage assets to confirm condition, alignment, and existing discharge points for potential reuse.

For the CCTV survey conducted, it is suggested for Lower Campfield that for the surveyed drainage the lines were in reasonable condition, with two separate foul and surface water systems present in the buildings boundary. The internal manholes were not surveyed due to potential damage to the floor. As the museum building was still owned by the Museum of Science and Industry at time of survey and being a Grade II listed building, it was not deemed feasible to complete any internal survey work here. The western and eastern sides of Lower Campfield was covered by scaffolding at time of survey meaning all manholes here were unable to be lifted.

For Upper Campfield, numerous manholes were surveyed, with some restrictions given by a stud wall and pillar which restricted access. Most of the surveyed drains were in good condition, with minor defects that would require remedial work as per Drain Alert's recommendations. The drainage network for this building was found to be a combined system. As outlined above, despite some survey

work being completed, there are areas where higher level of detail is required to advance in understanding the complete existing network. Additional CCTV drainage surveys will be required to address outstanding information.

Plans provided by UU which indicate their recorded sewer network within the vicinity of the site, have also been utilised to develop the drainage strategy general arrangement and are included in Appendix B.

An extract of the existing UU sewer and water records has been taken and is illustrated below in Figure 4. It indicates the following public infrastructure within the site boundaries and in the vicinity of the buildings:

- Existing 375mm x 500mm dia. combined public sewer pipe located under Liverpool Road, running south of both buildings.
- Existing 100mm dia. Vitrified Clay (VC) combined public sewer pipe located under Liverpool Road, running between the 375mm dia. Combined public sewer between the two buildings, south side.
- Existing 100mm dia. VC surface water public sewer pipe located in the footpath off Tonman Street, northwest of Lower Campfield Market.
- Existing (unknown diameter) combined public sewer network located in the footpath of Lower Byrom Street, along the western edge of Lower Campfield Market.
- Existing 150mm dia. VC foul public sewer pipe located underneath an existing running establishment, running in a southern direction to the eastern edge of Upper Campfield Market.

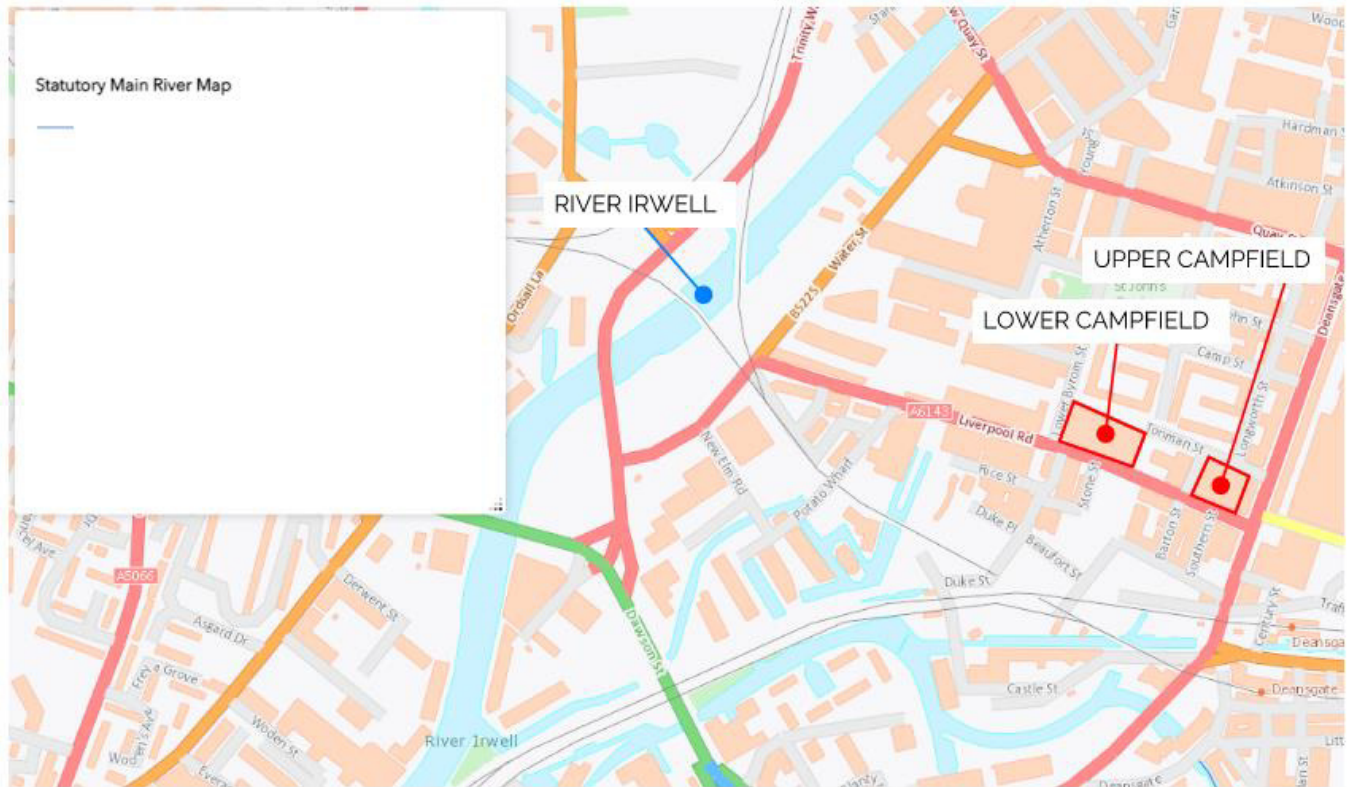


Figure 4 : Extract from United Utilities Existing sewer and water records

2.3 Existing Watercourse and Waterbodies

The River Irwell is approximately 400m northwest of Lower Campfield and 550m northwest of Upper Campfield. From review of the Environment Agency (EA) main river map, the river Irwell is classified

as a main river. The EA carries out maintenance, improvement, or construction work on main rivers to



manage flood risk. This is shown in Figure 5 below.

Figure 5. Environment Agency (EA) Statutory Main River Map

For Lower Campfield Market, the closest canal is the Bridgewater Canal located 150m in a southwest direction to the site. For Upper Campfield Market, the closest canal is the Rochdale Canal Tow path which sits 160m, away from the building in a southern direction. This is shown in Figure 6 below.

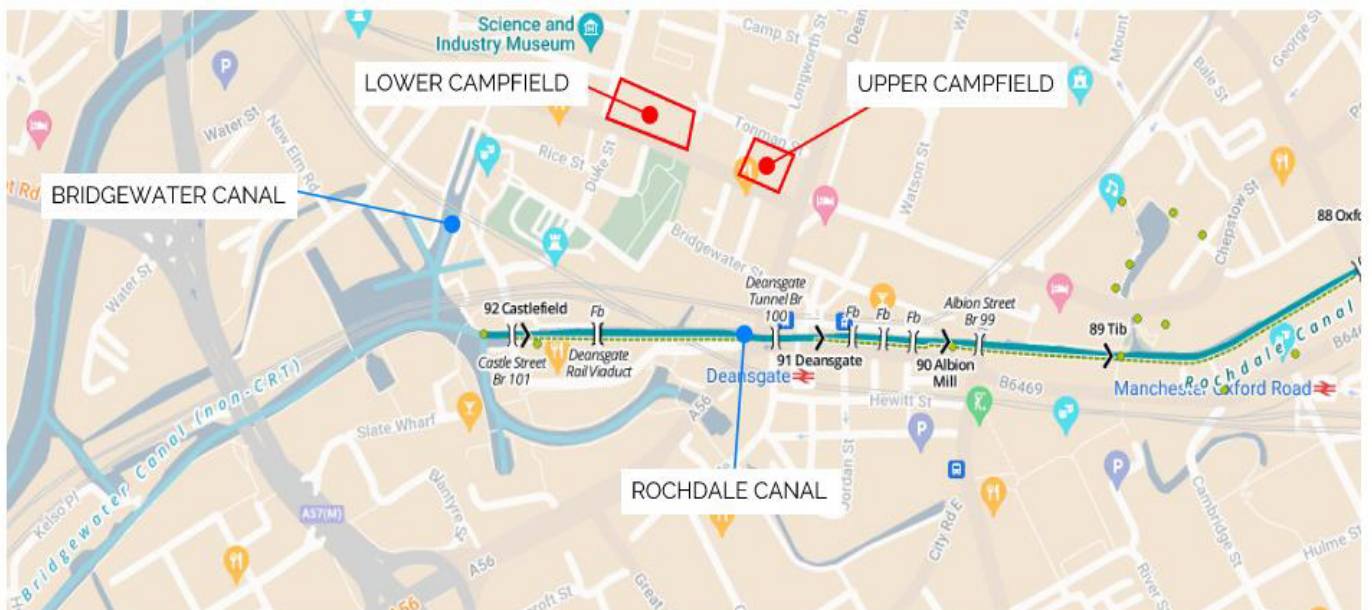


Figure 6. Map from Canal and River Trust, detailing nearby canals managed by the Trust.

Given the distance from the sites and the requirements to cross 3rd party land, especially in a busy city centre such as Manchester, connection to a watercourse has not been considered feasible for this project.

3. Flood Risk Statement

This section presents relevant policy and guidance used to inform the statements of flood risk to the site, and the subsequent assessment based on various sources of flooding.

3.1 Relevant Policy and Guidance

3.1.1 National Planning Policy Framework (NPPF)

The National Planning Policy Framework document (NPPF) and the Planning Practice Guidance provide guidance on how flood risk should be assessed during the planning and development process.

The NPPF refers to the Flood Zones which are shown on the Environment Agency Flood Map, and establishes the range of uses which are appropriate, or compatible, land uses for each Flood Zone.

Annex 3 of the National Planning Policy Framework (NPPF) lists these land uses in the context of their flood risk vulnerability. The following extract below outlines the NPPF Flood Risk Vulnerability Classifications and their associated land uses:

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 development

- 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.

The Flood Zones can be summarised as follows:

Zone 1: Low Probability. This zone comprises land assessed as having a less than 1 in 1000 annual

probability of river or sea flooding in any one year. (<0.1%)

Zone 2: Medium Probability. This zone comprises land assessed as having between 1 in 100 and 1 in 1000 annual probability of river flooding (1%-0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1%) in any year.

Zone 3a: High Probability. This zone comprises land assessed as having 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

Zone 3b: Functional Flood Plain. This zone comprises land where water must flow or be stored in times of flood. Strategic Flood Risk Assessments should identify this zone.

The flood risk vulnerability and flood zone 'compatibility' has been summarised in Table 1. The EA presents a set of recommendations based on the level of vulnerability of a proposed structure and its flood zone.

Flood Risk Vulnerability Classification		Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Flood Zone	Zone 1	√	√	√	√	√
	Zone 2	√	Exception Test Required	√	√	√
	Zone 3a	Exception Test Required	x	Exception Test Required	√	√
	Zone 3b (functional floodplain)	Exception Test Required	x	x	x	√
		√ Development is appropriate x Development should not be permitted.				

Table 1 - Flood Risk Vulnerability Classification Table

The flood zone categorisation for the site and evaluation of whether the development is appropriate is carried out in Section 3.2 to Section 3.6.

3.1.2 Site Specific NPPF Flood Risk Categorisation

To assess the NPPF flood risk classification for the site, the Government web based 'Flood Map for Planning' is reviewed. The flood map identifies the probability of flooding from rivers or sea (not considering the presence of flood defences). The Government web based 'Long Term Flood Risk

Assessment for Locations in England' was also used to identify the flood risks from rivers and seas, surface water and reservoirs. The Flood Map for Planning and surrounding areas, for both the Lower and Upper Campfield are shown in Figure 7 and Figure 8.

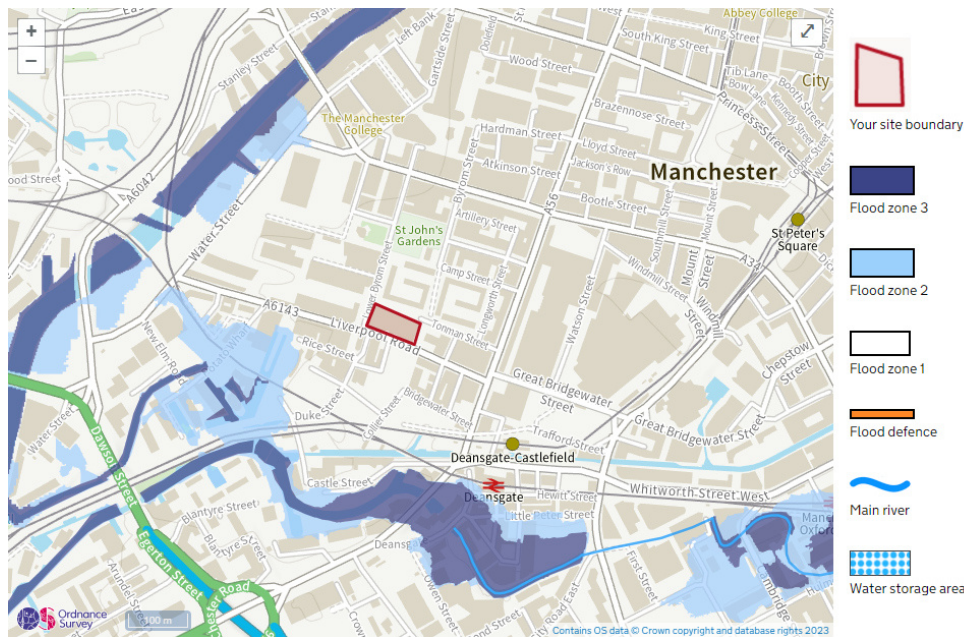


Figure 7: Flood Map for Planning - Lower Campfield

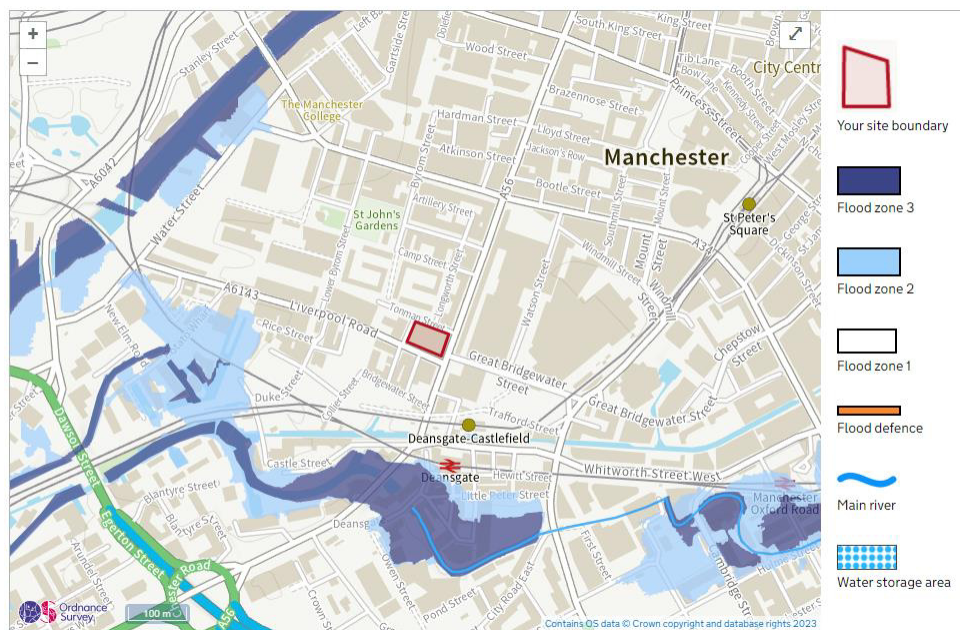


Figure 8. Flood Map for Planning – Upper Campfield

3.1.3 Site Specific Flood Zone Compatibility

The proposed development sits within Flood Zone 1 for both Lower Campfield and Upper Campfield Market Halls, meaning there is a low probability of annual flooding from rivers and sea. As per

Table 1 above, given that the development is within Flood Zone 1 and is considered as 'less vulnerable' the development is deemed appropriate and additionally does not require an exception test. Manchester City, Salford City and Trafford Councils Level 2 Hybrid Strategic Flood Risk

Assessment (SFRA)

Manchester City Council's and Trafford Council's Sustainability Appraisal have a flood risk objective to '**Reduce the impacts of climate change**', with the sub-objective to, '**minimise risk of flooding and increase use of Suds**'. There are two indicators for Manchester and Trafford:

- New developments incorporating SuDS.
- New developments in Flood Zone 3

Salford City Council's Sustainability Appraisal has a flood risk objective "**To minimise the risk and impacts of flooding**". There is one Sustainability Appraisal indicator for Salford:

- Number of dwellings at risk of flooding more often than once every 100 years. The SFRA provides information (e.g., maps, Sequential Test spreadsheet) to measure these indicators and will provide the evidence base to help direct sustainable development.

The key objectives of a SFRA are to:

- Investigate and identify the extent and severity of flood risk to the area at present and in the future, under the terms of PPS25.
- Contribute to the Council's Sustainability Appraisal (SA) and LDF.
- Enable the Council to apply the Sequential Test and the Exception Test.
- Provide strategic flood risk guidance and advice to planners and developers.
- Help LPAs to identify specific locations where further and more detailed flood risk data and assessment work is required. This includes the scope for Surface Water Management Plans (SWMPs) and/or Water Cycle Studies (WCSs).
- Identify the level of detail required for site-specific Flood Risk Assessments (FRAs).

3.2 Tidal/ Fluvial (Rivers and Sea) Flood Risk

Fluvial (main river) flooding occurs when the capacity of a main river is exceeded, resulting in water overtopping its banks. Heavy or prolonged rainfall, melting of ice and snow and – in rivers subjected to tidal processes – high tides and storm surges are the primary causes of this source of flooding.

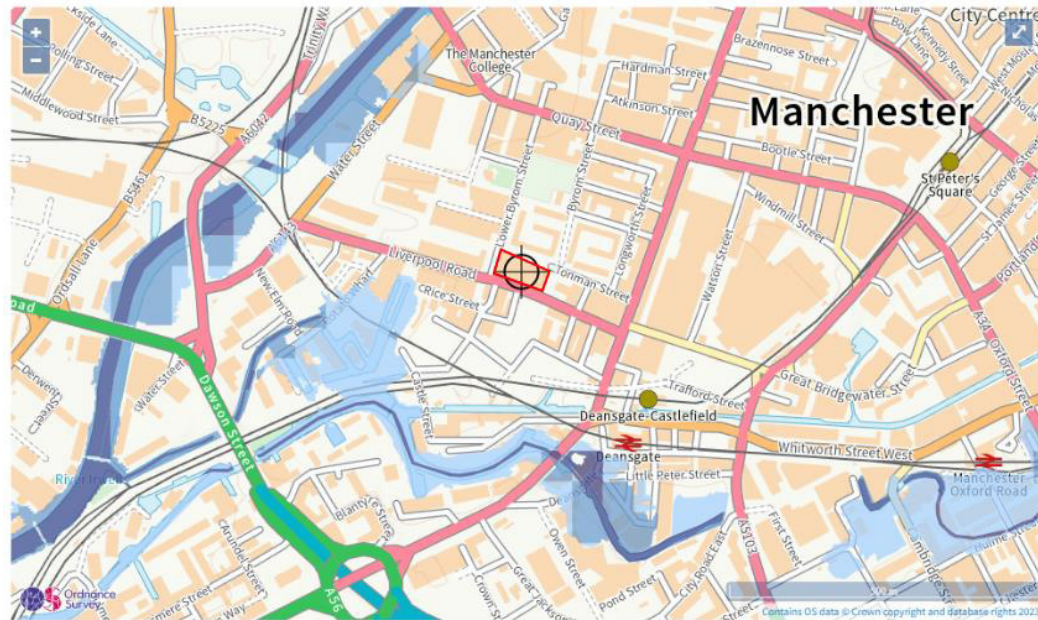
The EA Flood Map for Planning (Rivers and Sea) highlights the risk of flooding to the site from fluvial sources:

- Where a site is in a dark blue shaded zone, this indicates that the site is within Flood Zone 3 where there is a chance of flooding of 1 in 100 (1%) or greater.
- Where a site is in a light blue shaded zone; this indicates that the site is within Flood Zone 2

where there is a chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%).

- Where a site is in a white (unshaded) area, it is generally deemed to be classified as Flood Zone 1 where there is a chance of flooding of less than 1 in 1000 (0.1%).

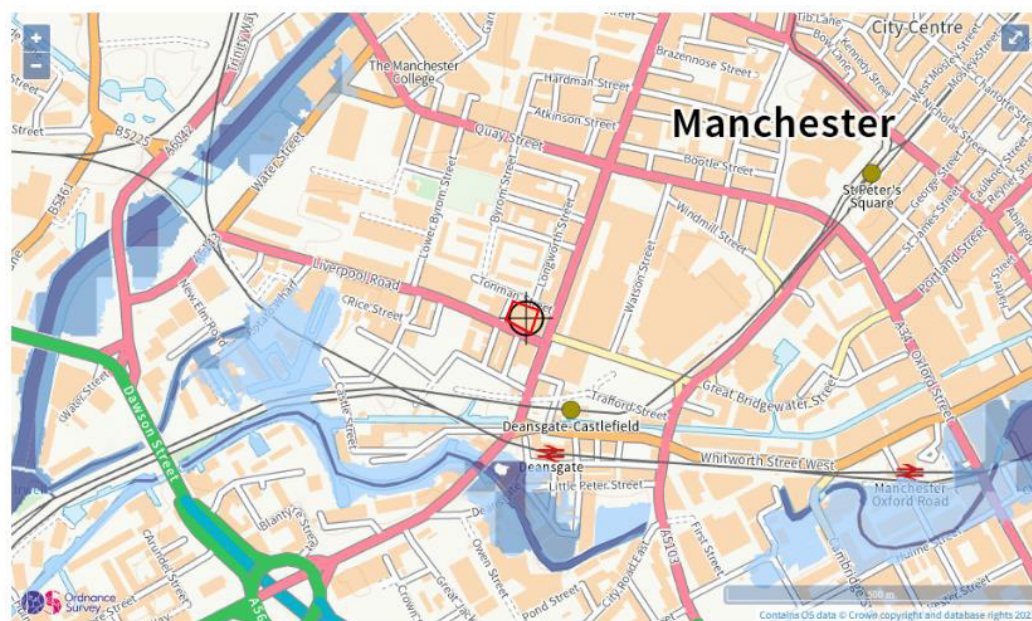
The map shown in Figure 9 and Figure 10, indicates a very low probability of annual flooding from rivers and sea.



Extent of flooding from rivers or the sea

High Medium Low Very low Location you selected

Figure 9: Flood Risk Map from rivers or sea - Lower Campfield



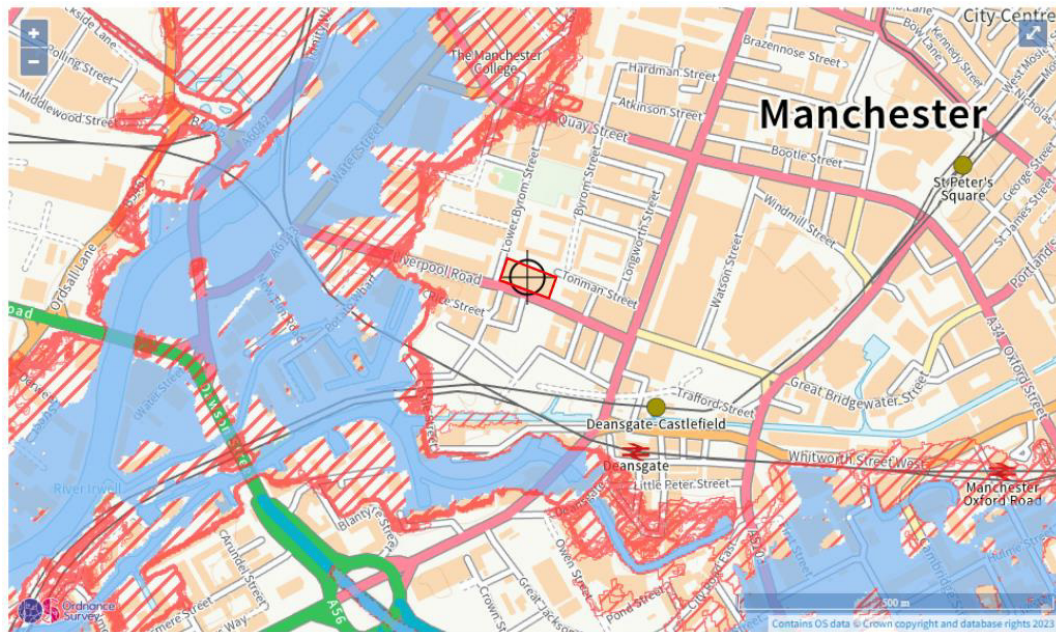
Extent of flooding from rivers or the sea

High Medium Low Very low Location you selected

Figure 10: Flood Risk Map from rivers or sea - Upper Campfield

3.3 Reservoir Flood Risk

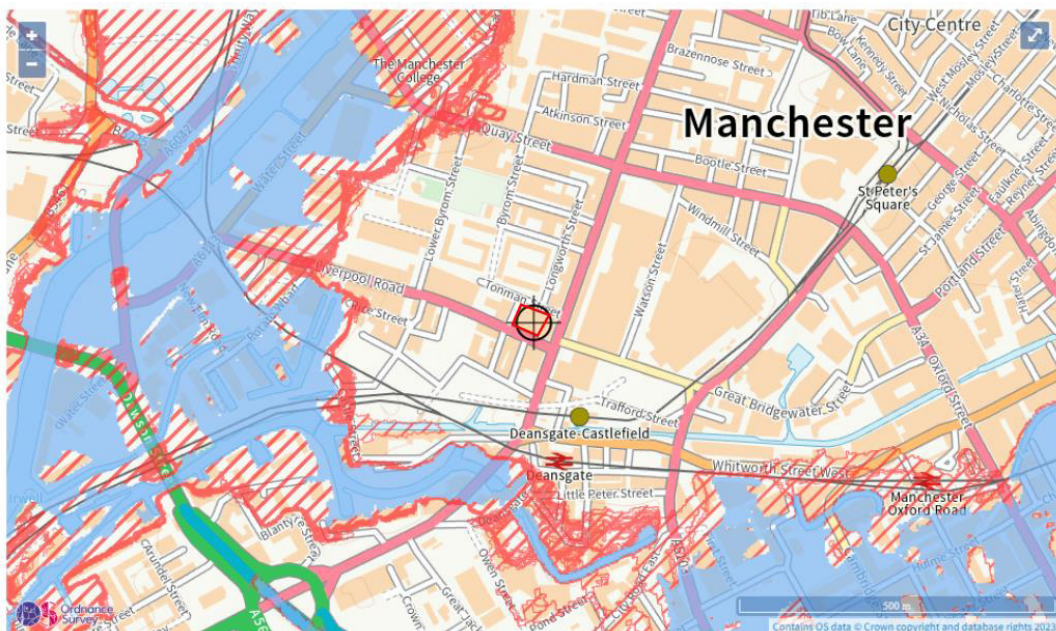
The 'Flood Risk Map from reservoirs', shown in Figure 11 and Figure 12 below indicate a very low to zero probability of flooding from reservoirs.



Maximum extent of flooding from reservoirs:

● when river levels are normal ■ when there is also flooding from rivers ⊕ Location you selected

Figure 11: Flood Risk Map from reservoirs - Lower Campfield



Maximum extent of flooding from reservoirs:

● when river levels are normal ■ when there is also flooding from rivers ⊕ Location you selected

Figure 12: Flood Risk Map from reservoirs - Upper Campfield

3.4 Groundwater Flood Risk

Groundwater flooding is the result of an elevated underground water table enabling water to permeate to the surface.

According to the 'Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA' completed in March 2011, the Campfield Market Halls does not fall within a hatched area meaning no information can be provided from such regarding groundwater risks. Site Investigation (SI) works required to confirm potential groundwater risks.

3.5 Surface Water Flood Risk

Surface water flooding can be caused when rainwater, during extreme rainfall events, does not drain away through the normal drainage system or soak into the ground. Surcharging sewers can result in overland flows which, if originating at a higher elevation than the development site, can potentially pose a flood risk.

Surface water flooding is dependent primarily on topography which dictates either the flow path of overland flow which is not contained within public sewers, or areas in which ponding may occur. Surface water flooding is more difficult to predict than the risk of flooding from Rivers or Sea as it is dependent on the amount of rain which will fall in a very localised area, the specific topography of that region and the capacity and functionality of the drainage network within that section.

From the UK Government's Flood Risk from Surface Water (extent of flooding) map.

- Where a site is in a dark blue shaded zone, this indicates that the site is at high risk of flooding where there is a chance of flooding of greater than 1 in 30 (3.3%).
- Where a site is in a mid-blue shaded zone, this indicates that the site is at medium risk of flooding where there is a chance of flooding of between 1 in 100 (1%) and 1 in 30 (3.3%).
- Where a site is in a light blue shaded zone; this indicates that the site is at low risk of flooding where there is a chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%).
- Where a site is in a white (unshaded) area; this indicates that the site is at very low risk of

flooding where there is a chance of flooding of less than 1 in 1000 (0.1%).

The extent of flooding to the site from surface water is indicated in Figure 13 and Figure 14. It shows that there is very low surface water flood risk across both Upper and Lower Campfield.

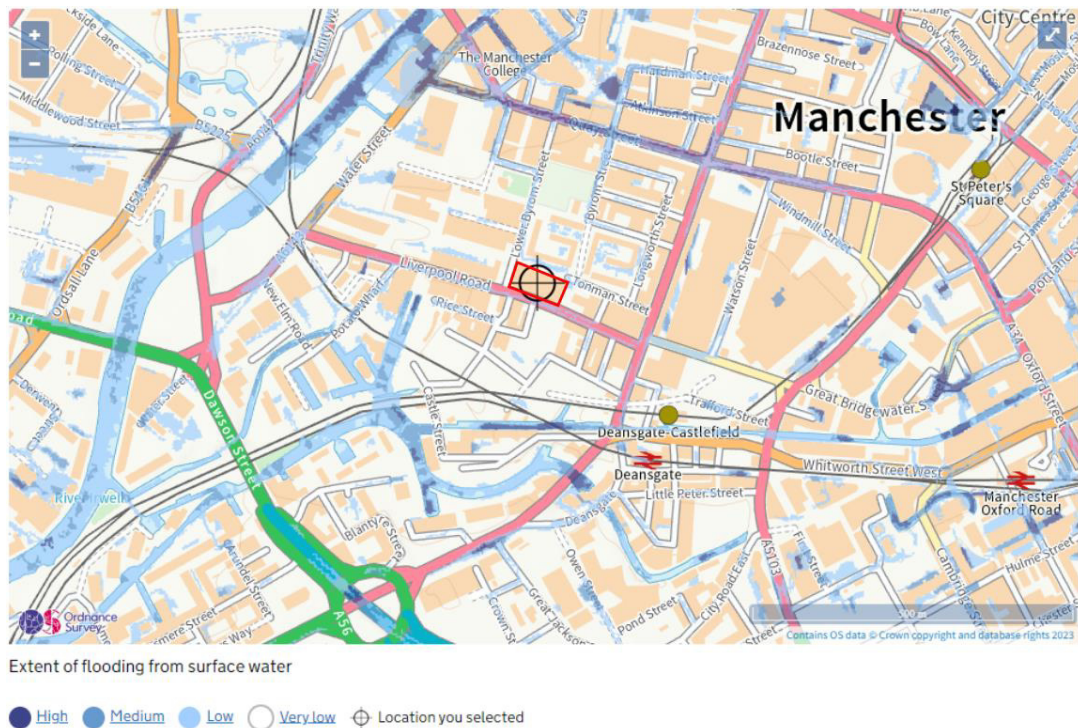


Figure 13 : Flood Risk Map from surface water - Lower Campfield



Figure 14 : Flood Risk Map from surface water - Upper Campfield

3.6 Sewer Flood Risk

Sewers may also flood due to exceeded capacity or blockages outside of major storm events. No data on the site's existing flood risk from sewers, including any historic records of sewer flood events, have been found as part of this Flood Risk Statement. Data will be required from UU to confirm this risk. Nevertheless, sewers are man-made infrastructure and are regularly monitored and maintained by the statutory undertaker UU; the risk of sewer flooding is considered to be low.

3.7 Summary of Flood Risk

From the evidence collated and subsequent negotiations, the flood risk for the proposed development can be summarised in Table 2 below:

Source of Flooding	Lower Campfield Market	Upper Campfield Market
River	Very Low Risk	Very Low Risk
Sea	Very Low Risk	Very Low Risk
Reservoir	Very Low Risk	Very Low Risk
Groundwater	TBC	TBC
Surface Water	Very Low Risk	Very Low Risk
Sewers	Low	Low

Table 2: Summary of Flood Risk

4. Proposed Surface Water Drainage

Both Upper Campfield and Lower Campfield Market Halls are existing buildings and therefore the development is classed as a brownfield site. This project proposes an internal refurbishment of these two existing buildings in which no exterior surfaces are changing; hence **surface run off rate is not anticipated to change** either. Furthermore, at the current stage **new connections are not likely to be required** during the proposal.

Therefore, as part of this drainage strategy, it is proposed to maintain the existing brownfield rates as it is considered an internal refurbishment project and as stated above it is not considered any additional drainage is to be proposed.

However, if further along the design stage rates are believed to be needing to change and the need for new connections is brought to light, such will be done regarding the four pillars of SuDS Design.

CIRIA C753 (The SuDS Manual) presents the four pillars of SuDS design: Water Quality, Water Quantity,

Amenity and Biodiversity, as illustrated in Figure 15 below.

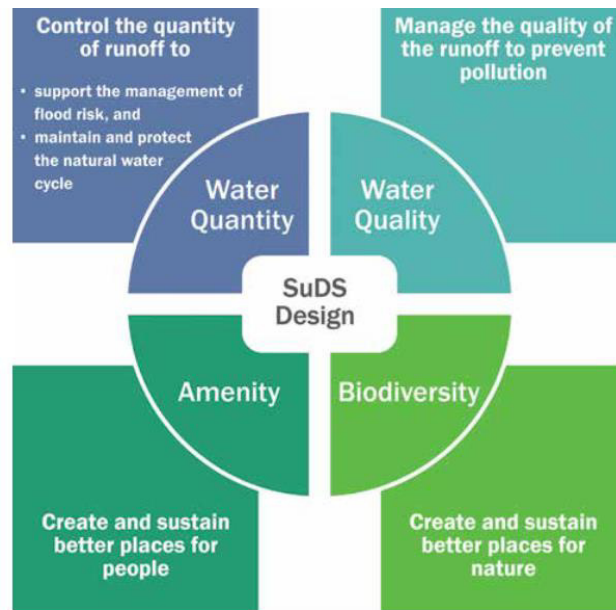


Figure 15. Sustainability Development Objectives (Figure 2.1. of CIRIA 753)

The following sections describe how, if required at a later stage of the design, the proposed drainage design for the development shall aim to satisfy these four pillars as well as mitigate the flood risks identified in the previous section.

The latest draft version of the Outline Drainage Strategy 2302-CIV-XX-XX-D-C-30001-30003 is provided in Appendix E.

At current, the existing UU records have been overlaid onto the existing building plans to illustrate what is currently existing regarding this project. Note these are preliminary sketches informed by current assumptions at time and are not indicative of the final design. As outlined above it is not intended for any additional drainage to be required for these two existing buildings and so confirmation as to what sewers can be reused will be assessed in conjunction with the CCTV drainage survey.

5. Sustainable Drainage Systems (SuDS) Features

Table 3 summarises numerous SuDS components that could potentially be adopted as part of this drainage strategy. A description of such has been provided with an assessment of how suitable they would be for this project given the site limitations. Some of these limitations include, but are not limited to, being Grade II listed buildings and being an internal refurbishment project, which means

no external surfaces are changing.

SuDS Components	Description	Suitability
SuDS proposed for implementation		
Rain gardens	Rain gardens are areas of planting that can provide surface water attenuation whilst increasing biodiversity and amenity. Rain gardens additionally provide improvements to water quality due to filtration of surface water runoff as it flows through the growing media of planting.	Due to internal refurbishment nature of this project such will unlikely be feasible for this site.
Tree planting	Similar to rain gardens, tree planting provides amenity, biodiversity, treatment, and small amounts of attenuation benefits within the tree's growing medium or 'pit'.	Due to internal refurbishment nature of this project such will unlikely be feasible for this site.
SuDS considered for implementation		
Attenuation tanks	Attenuation storage tanks come in a variety of forms such as geo-cellular tanks and oversized pipes. They provide large amounts of attenuation and can be incorporated within highways and under landscaping, however, they provide limited benefit beyond this with regard to the SuDS pillars.	Limitations being a listed building and hence no space for such.
Basins, ponds and swales	Basins, ponds and swales are large, often planted, depressions in the ground which can increase biodiversity and amenity of the area, provide more significant attenuation, and improve water quality. Swales can be used adjacent to any impervious surfaces to collect surface and convey downstream.	Limitations being a listed building and hence no space for such.

Permeable paving	Permeable paving incorporates voids in its surface to allow rainfall to percolate below ground at the point at which it falls. It removes the requirement to provide entry points (gullies etc.), provides pollution treatment and allows water to be stored within the aggregate sub-base of the paving.	This will be recommended where possible when any paving surface are upgraded as part of the scheme.
SuDS not considered for implementation		
Green/blue roofs	Green roofs involve the planting or vegetation on the roofs of buildings or structures, which intercept rainfall and provide attenuation and biodiversity benefits. A blue roof is similar in that rainfall is intercepted but instead conveyed to a storage tank housed within the roof and therefore only provide attenuation benefit.	Limitations for changes with it being listed buildings and additional loading may not be feasible for the existing structure. amounts of runoff attenuation.

Table 3 : Summary of SuDS components and assessment of their suitability for use within the proposed development.

5.1 Proposed Surface Water Drainage Strategy

The National Planning Policy Framework (NPPF) Planning Practice Guidance Paragraph 080 states that:

"Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable:

1. into the ground (infiltration).
2. to a surface water body.
3. to a surface water sewer, highway drain, or another drainage system.
4. to a combined sewer."

The proposed drainage outfalls for the site have been considered in line with this hierarchy above, and an assessment made of their suitability. A Pre-Development Enquiry (PDE) has been issued to UU and the Local Lead Flood Authority (LLFA) to understand where the potential points of connection could be and for what rates they will allow. It has been highlighted to both stakeholders that this is an internal refurbishment project and hence it is not expected that any rates are to change. At current (Sept 2023) a response from the LLFA is still pending and conversations with UU are ongoing regarding any proposed drainage outfalls and associated allowable rates.

Both Lower Campfield and Upper Campfield are existing buildings, and therefore the development

is classed as a brownfield site. Given that the proposals only include internal fit out, it is not proposed that surface run off rates will be changed as no exterior surfaces are anticipated to be changing. It is also not anticipated that there is any need for new connections however the below has still been considered for completeness:

Infiltration

The Defra Magic map tool has highlighted that the buildings are in an area with medium to high groundwater vulnerability. Furthermore, an asbestos survey completed in January and February 2022 for Upper and Lower Campfield respectively, indicate that there is some asbestos present in the buildings. Due to the risk of aquifer contamination, infiltration may not be feasible for this redevelopment work. Phase 2 intrusive site investigation, including soakaway testing, is required to confirm such infiltration feasibility.

Supporting such ideas is the BGS Infiltration Report, which suggests infiltration may not be feasible for these sites. Based on the data regarding infiltration via SuDS, made ground and contamination, infiltration for this site is unlikely to be deemed feasible. For details of this report refer to Appendix C.

Water Body

The closest watercourse to Lower Campfield is the Bridgewater Canal located 150m in a southwest direction. For Upper Campfield the closest watercourse is the Rochdale Canal Tow path which sits 160m from the building in a Southern direction. The closest river to both the buildings is the river Irwell which is located 400m northwest from Lower Campfield and 550m northwest from Upper Campfield. Based on the distance from the site and the requirement to cross 3rd party land, connection to a watercourse has not been considered not feasible.

Surface Water Sewer

As illustrated in Appendix B, the UU existing sewer records indicate that no surface water sewers are in proximity to either Lower or Upper Campfield. Hence connection via a surface water sewer is deemed not feasible in this case.

Combined Sewer

In a response to the PDEs, UU have suggested for Lower Campfield connection to the 225mm diameter public combined sewer on site is feasible at a rate which is currently on going in discussions. For Upper Campfield connection into onsite existing drainage has been accepted, again at a rate which is currently ongoing in discussions. At time of issue, response from the LLFA is still pending.

5.2 Water Quantity

The existing brownfield discharge rate for the site has been determined using a simplified drainage network of the proposed sites. The basic network has been created in Causeway Flow. At the conceptual design stage, pipe sizes and vertical alignment of the network have been auto designed by Flow.

The pre-development discharge rates are provided in Table 4. The calculations from which these

rates were determined are provided in Appendix D.

Rate Classification	Peak Flow Rate (l/s)	
	Upper Campfield	Lower Campfield
Brownfield 1 in 1 year	24.3	46.0

Table 4: Summary of pre-development brownfield discharge rates.

It is proposed to maintain existing rates as per brownfield due to the existing nature of the building, sensitive nature of the listed building and associated complexities. As the proposal are for internal refurbishment only, it is not deemed necessary in this instant to reduce the rates. If rates are reduced, it will require attenuation to be accommodated. Again, due to the listed status of the building and the constraints on site, it will prove difficult to accommodate any attenuation.

6. Proposed Foul Water Drainage

The foul water system shall be designed in accordance with;

- BS EN 752:2008 (Drain and sewer systems outside buildings)
- Sewers for Adoption (6th Edition)
- Technical Guidance to the National Planning Policy Framework document (Department for Communities and Local Government, March 2012).
- BS EN 12056-2:2000 (Drainage systems inside buildings)
- Building Regulations Approved Document H, Drainage and waste disposal. (Office of the Deputy Prime Minister, December 2010).

Based on currently available information it is expected to reuse an existing connection into the public foul network in the vicinity of the site. In a response to the PDEs, UU have suggested that for Lower Campfield connection to the 225mm diameter public combined sewer on site is feasible at an unrestricted rate. For Upper Campfield, connection into existing on-site public foul / combined drainage is acceptable at an unrestricted rate. At time of issue, response from the LLFA is still pending.

The network(s) shall discharge to the nearest public combined sewer, reutilising existing points of connection where feasible. All connections will be subject to agreement with United Utilities under Section 106 of the Water Industry Act 1991.

The proposed drainage strategy is enclosed in Appendix E.

7. Conclusions

This report has assessed the current risk of flooding two Campfield Market Halls, namely Upper and Lower Campfield, in Manchester, which are to undergo internal refurbishments of the existing building to be fit for the new development plans.

The assessment has been undertaken in accordance with the National Planning Policy Framework (NPPF) and associated guidance on flood risk and coastal change contained within the Planning Practice Guidance. The Manchester City, Salford City and Trafford Councils Level 2 Hybrid Strategic Flood Risk Assessment (SFRA) has served as a further source of information and guidance where relevant.

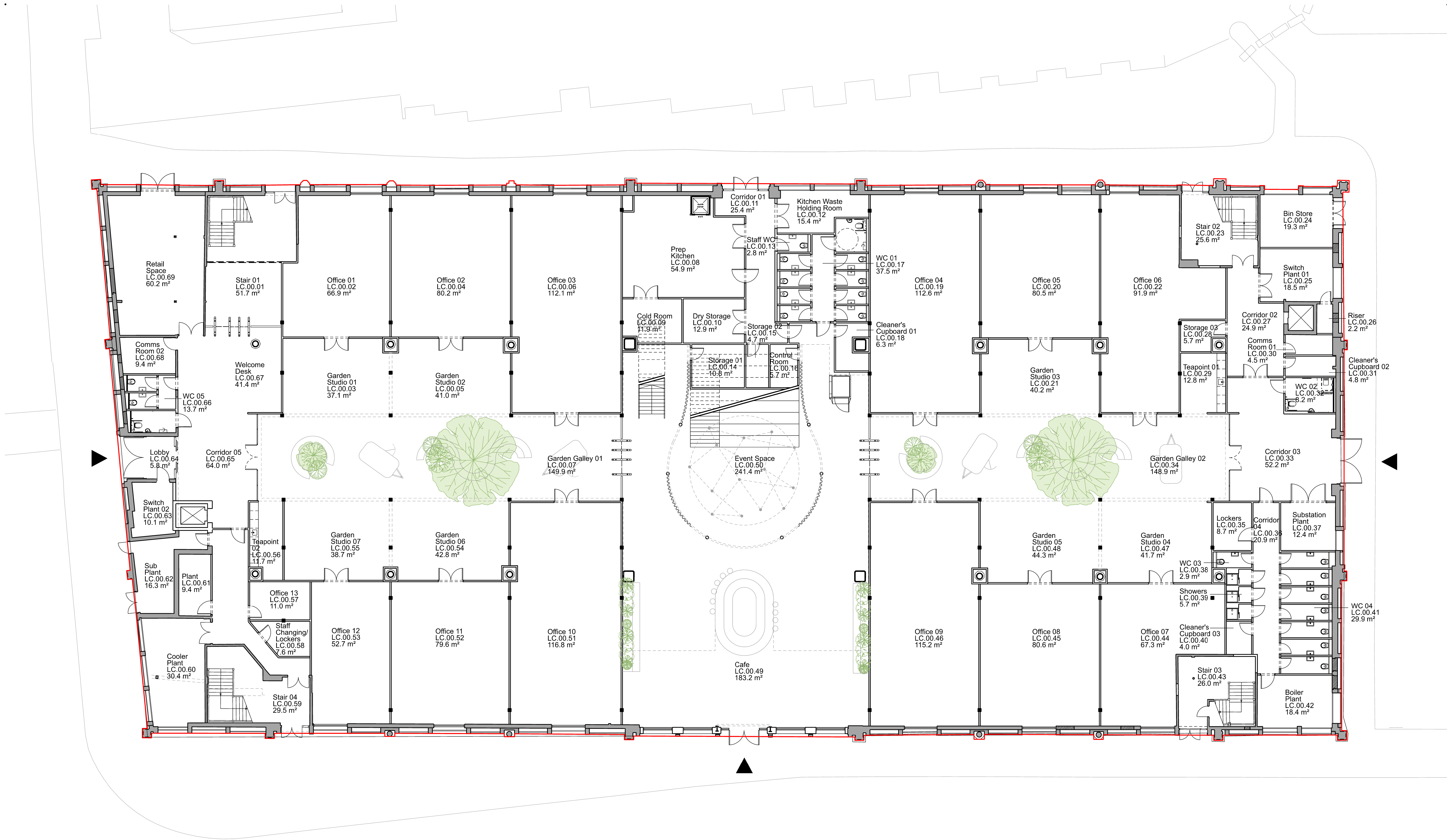
In its present form, the site is at very low risk from fluvial flooding and Environment Agency (EA) data places the site in Flood Zone 1. The sites are additionally deemed to be at very low risk from surface water/pluvial flooding. Groundwater flooding is to be confirmed via an invasive Phase 2 Site Investigation. The flood risk from public sewers is to be confirmed by United Utilities (UU) but is presumed low. Other sources of flooding – reservoirs and canals – are deemed very low risk.

The nature of the project being an internal refurbishment means that no external surfaces are proposed to be changing as part of the project work. Therefore, it is anticipated that current run off rates will be unchanged and hence be appropriate to continue with as part of the project works. Conversations with UU are ongoing on this issue. The proposed outfalls are the existing combined water sewers traversing the site. The proposed site outfall is subject to the obtention of necessary agreements and approvals from the Lead Local Flood Authority (LLFA) and UU (where connections are to be made to UU assets).

Foul water flows from any internal layout changes such as extra WC and showers, serving potentially contaminated flows from the site will be connected via the existing public foul / combined sewer systems. As above, this connection is subject to approval from the LLFA and UU.

Overall, the development is deemed to have a very low overall flood risk and is not expected to have a detrimental impact on flood risk in the area. Furthermore, as the proposed development aims to not change any external surfaces and only considers an internal refurbishment, the associated flood risks are not deemed to change either and hence the probability of flooding post development is unchanged.

Appendix A – Masterplans



Proposed Plan - Ground Floor

Notes:	Rev:	Date:	Description:	By:
Do not scale from this drawing.	P01	14/07/23	First Issue	ws
All dimensions are in millimetres unless otherwise noted.	P02	18/08/23	Room names updated	ws
All dimensions to be checked on site before proceeding with work.	P03	21/08/23	Louvers addition	ko
All omissions and discrepancies to be reported in writing to Project 3 Architects Ltd.	P04	30/08/23	Layout updated	ko
Areas indicated on this drawing are approximate and indicative only.	P05	11/09/23	Layout updated	ko
© Project 3 Architects Limited Registered in England & Wales Number 08021795.				



PROJECT3
architects

4 back grafton street
altrincham
cheshire
WA14 1DY

0161 233 0575
mail@project3architects.com
www.project3architects.com

Project:
Lower Campfield
Liverpool Road, Manchester

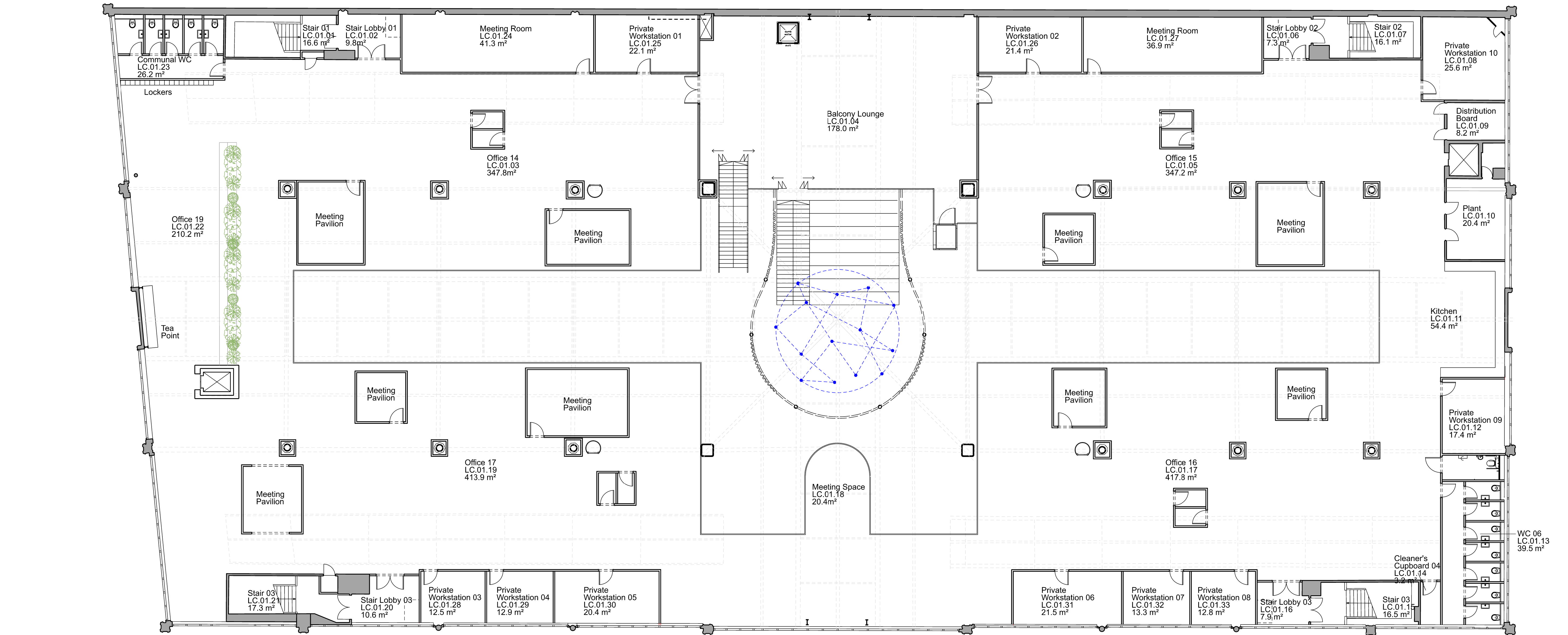
Title:
Proposed Floor Plans
Ground Floor

Status:
PLANNING

Drawing Number:
0774-P3A-XX-X_DR-A-05020

Scale @ ISO A1:
1:125

Revision:
P05

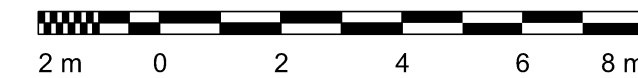
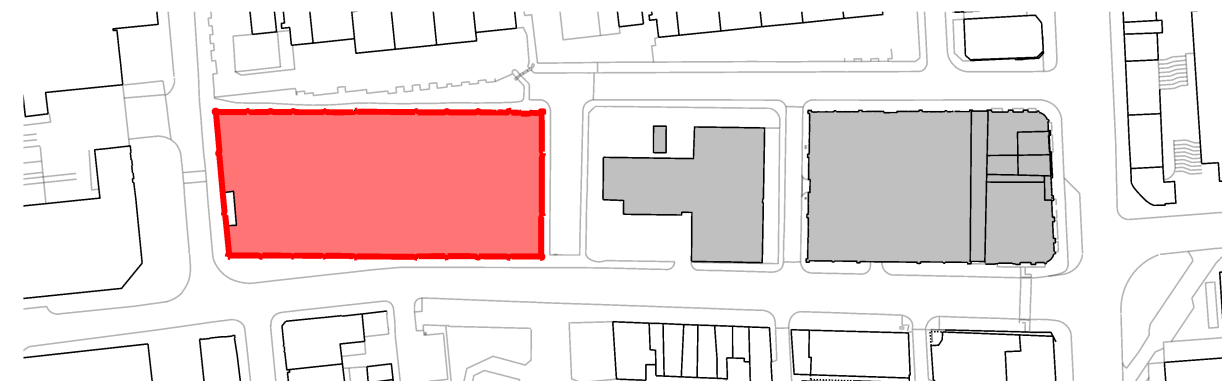


Proposed Plan - First Floor

Notes:

Do not scale from this drawing.
All dimensions are in millimetres unless otherwise noted.
All dimensions to be checked on site before proceeding with work.
All omissions and discrepancies to be reported in writing to Project 3 Architects Ltd.
Areas indicated on this drawing are approximate and indicative only.
© Project 3 Architects Limited Registered in England & Wales Number 08021795.

Rev:	Date:	Description:	By:
P01	14/07/23	First Issue	ws
P02	09/08/23	Riser added	ws
P03	14/09/23	Meeting rooms added	ws



PROJECT3
architects

4 back grafton street
altrincham
cheshire
WA14 1DY

0161 233 0575
mail@project3architects.com
www.project3architects.com

Project:
Lower Campfield
Liverpool Road, Manchester

Title:
Proposed Floor Plans
First Floor

Status:
PLANNING

Drawing Number:
0774-P3A-XX-X_DR-A-05021

Scale @ ISO A1:

1:125

Revision:

P03



	DRAWING <i>PROPOSED GROUND FLOOR</i>		P2 P1 STATUS Planning Planning: Public Consultation REVISION 04/09/23 31/08/23 DATE All dimensions to be checked on site prior to commencement of any works, and/or preparation of any shop drawings. Sizes of and dimensions to any structural elements are indicative only. See structural engineers drawings for actual sizes / dimensions. Sizes of and dimensions to any service elements are indicative only. See service engineers drawings for actual sizes and dimensions. This drawing to be read in conjunction with all other Architect's drawings, specifications and other Consultants' information. All proprietary systems shown on this drawing are to be installed strictly in accordance with the Manufacturers/Suppliers recommended details. Any discrepancies between information shown on this drawing and any other contract information or manufacturers/suppliers recommendations is to be brought to the attention of the Architect. DO NOT SCALE FROM THIS DRAWING.
	SCALE <i>1:200 at A3</i>	PROJECT NUMBER <i>23-058</i>	
	DATE <i>Aug 2023</i>	DRAWING STATUS <i>Planning</i>	
	DWG No. <i>UC_GA-00</i>	REVISION <i>P2</i>	
PROJECT <i>Upper Campfield</i>			



Appendix B – Survey Information

- UU - Existing Sewer and Water Records
- ND Oliver – Topographical Survey
- Drain Alert – CCTV Survey

Civic Engineers Ltd

Carvers Warehouse, 77
Dale Street,
Manchester,
M1 2HG

FAO:

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Your Ref: 2302 - Campfield Market Main Works
Our Ref: UUPS-ORD-516352
Date: 04/09/2023

Dear Sirs

Location: APARTMENT 10 4 BARTON STREET, MANCHESTER, M3 4NN

I acknowledge with thanks your request dated 01/09/2023 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

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

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



Karen McCormack
Property Searches Manager

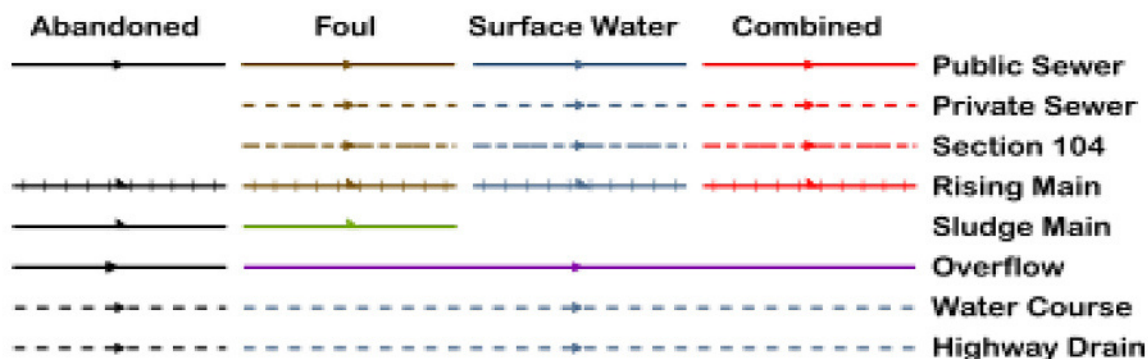
TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This 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.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this 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 Map have been made subsequent to issue and prior to any works being carried out.
- This 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) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the 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 UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

Wastewater Symbolology



All point assets follow the standard colour convention: **red** – combined **brown** - foul
blue – surface water **purple** - overflow

Manhole	Side Entry Manhole
Head of System	Outfall
Extent of Survey	Screen Chamber
Rodding Eye	Inspection Chamber
Inlet	Bifurcation Chamber
Discharge Point	Lamp Hole
Vortex	T Junction / Saddle
Penstock	Catchpit
Washout Chamber	Valve Chamber
Valve	Vent Column
Air Valve	Vortex Chamber
Non Return Valve	Penstock Chamber
Soakaway	Network Storage Tank
Gully	Sewer Overflow
Cascade	Ww Treatment Works
Flow Meter	Ww Pumping Station
Hatch Box	Septic Tank
Oil Interceptor	Control Kiosk
Summit	
Drop Shaft	Change of Characteristic
Orifice Plate	