Flood Risk Assessment and Drainage Strategy

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For: Lau Yuk Ltd

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1. Introduction

1.1 Acknowledgement

1.1.1 This report has been prepared for the sole and exclusive use of Lau Yuk Ltd ('the client') in accordance with the scope of work presented via Letter Agreement by Arthian, dated 18/07/2025, Ref: 320166/IR/180725/1.0. This report is based on information and data collected by Arthian. Should any of the information be incorrect, incomplete, or subject to change, Arthian may wish to revise the report accordingly.

1.1.2 Arthian have been instructed to provide a Flood Risk Assessment (FRA) and Drainage Strategy (DS) at 78 – 80 Tib Street, Manchester, M4 1LG.

1.2 Project Understanding

1.2.1 The site is shown to be located wholly within Flood Zone 1; however, the site is shown to be at Low to High risk (1 - ≥3.3% annual probability) of surface water flooding, according to the EA's Long Term Flood Risk Map (surface water) and therefore the application requires a Flood Risk Assessment and Drainage Strategy to support the application.

1.2.2 The aim of this report is to assess the potential flood risk to the site, the impact of the proposed development on flood risk elsewhere, and the proposed measures which could be incorporated to mitigate the identified risk (if required). This report has been prepared in accordance with the guidance contained in the National Planning Policy Framework (NPPF) revised in February 2025, and the National Planning Practice Guidance (NPPG) Flood Risk and Coastal Change.

1.2.3 Manchester City Council as Lead Local Flood Authority (LLFA) is a statutory consultee for major planning applications in relation to surface water drainage. The aim of the Sustainable Drainage Strategy is to identify water management measures, including Sustainable Drainage Systems (SuDS), to provide surface water runoff reduction and treatment.

1.2.4 This report takes into account the following national and local policies:

- National Planning Policy Framework (NPPF) (2025)[1];
- National Planning Practice Guidance (NPPG) (2022)[2];
- CIRIA Guidance: The SuDS Manual (C753) (2017)[3];
- Places for Everyone Joint Development Plan 2022 – 2039[4]; and

[1] https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf
[2] http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/
[3] https://www.ciria.org/Resources/Free_publications/SuDS_manual_C753.aspx
[4] https://www.greatermanchester-ca.gov.uk/media/2drduk0t/places-for-everyone-joint-development-plan-dec24.pdf

- Manchester City Council Core Strategy 2022 – 2027[5] .

1.3 Sources of Information

1.3.1 The following sources of information have been reviewed and assessed for the purpose of this FRA:

- EA online flood maps[6];
- Soilscapes Mapping[7];
- British Geological Society (BGS) Interactive Map[8];
- MAGIC Interactive Map[9];
- Manchester City Council Level 1 and 2 Strategic Flood Risk Assessments (2011 Level 1 SFRA, 2011 Level 2 SFRA[10]); and
- Greater Manchester Surface Water Management Plan (2012 SWMP[11]).

1.4 Project Limitations

1.4.1 The wider Arthian limitations are contained within Appendix A.

[5] https://www.manchester.gov.uk/downloads/download/5672/core_strategy
[6] https://flood-map-for-planning.service.gov.uk/
[7] https://www.landis.org.uk/soilscapes/
[8] http://mapapps.bgs.ac.uk/geologyofbritain/home.html
[9] http://www.magic.gov.uk/
[10] https://www.manchester.gov.uk/downloads/download/3871/strategic_flood_risk_assessment_sfra
[11] https://www.bury.gov.uk/asset-library/greater-manchester-surface-water-management-plan-stage-1-report.pdf

2. Site Details

2.1.1 The aim of this section of the report is to outline key environmental information associated with the baseline environment.

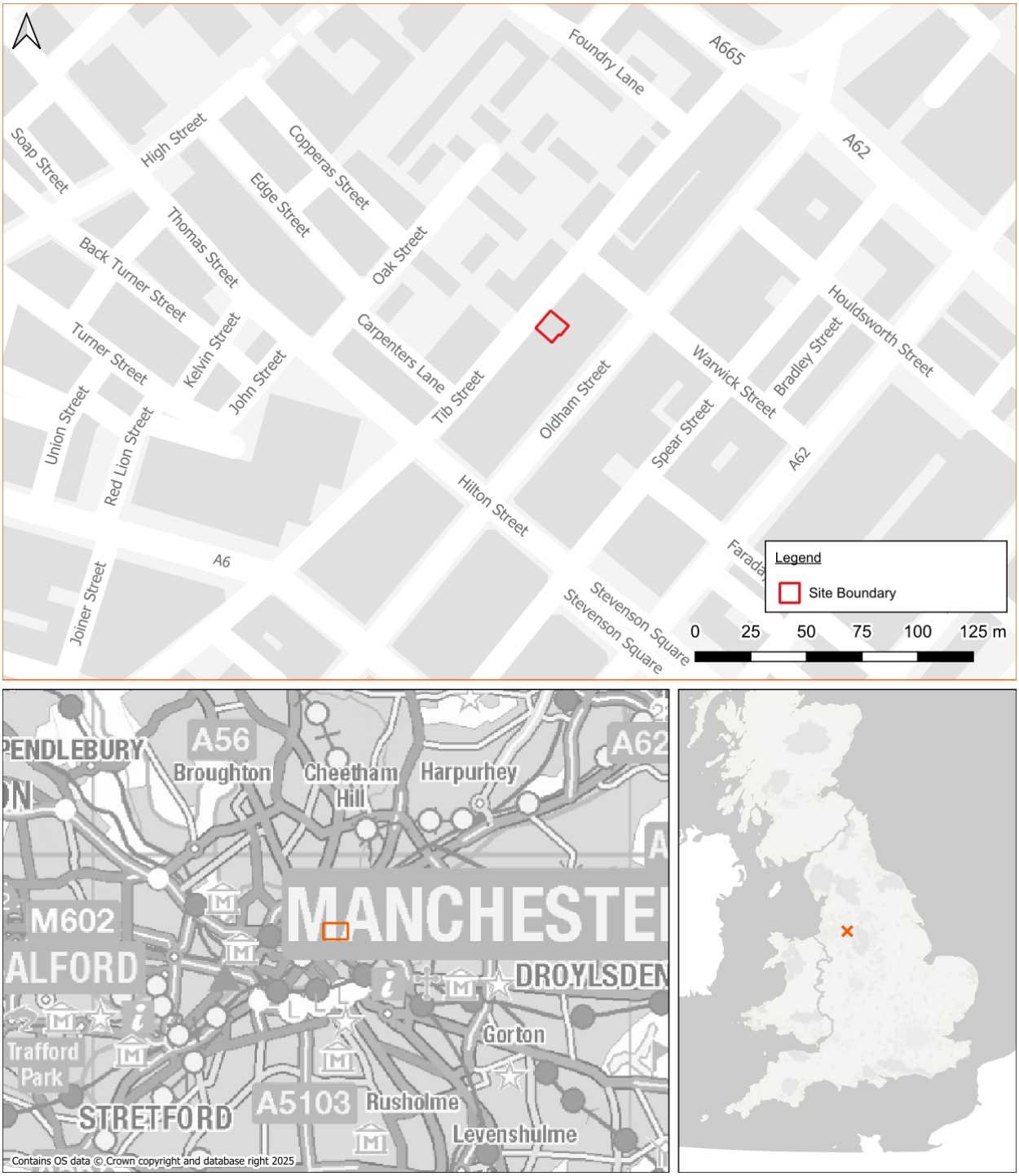


Figure 1: Site Location

2.2 Site Location

2.2.1 The site is located within the city of Manchester, in a neighbourhood known as the Northern Quarter. The site is approximately 570m south-east of Manchester Victoria Railway Station and 700m north of Manchester Picadilly Railway Station.

2.2.2 The National Grid Reference for the site is 384534, 398596.

2.3 Existing Site Conditions

2.3.1 Online mapping (including Google Maps / Google Streetview imagery, accessed 25/08/2025) shows that the existing site is approximately 0.01Ha in size and is brownfield, comprising a derelict building which spans across two building plots.

2.3.2 The site is bound:

- To the north, east and south by mixed-use residential / commercial buildings; and
- To the north-west / west by Tib Street, beyond which lies further mixed-use buildings.

2.3.3 The Site is accessible from Tib Street to the north-west which connects the site to Manchester City Centre.

2.4 Hydrology

2.4.1 There are no watercourses in close proximity to the site.

2.4.2 The nearest watercourse is the Rochdale Canal which is located approximately 410m to the south-east of the site at its closest point.

2.4.3 The River Irwell also runs through Manchester City, although lies approximately 725m west of the site. The River Irwell is a Main River (under the jurisdiction of the EA).

2.5 Topography

2.5.1 A topographic survey was undertaken across the external areas at the site and in the vicinity by Spatial Dimensions in June 2025. The survey is included in Appendix B and shows the external areas to range from 47.14 metres Above Ordnance Datum (m) AOD along Tib Street in the north-west and 48.02m AOD in the south.

2.5.2 Topographic levels to m AOD have also been derived from a 1m resolution Environment Agency (EA) composite 'Light Detecting and Ranging' (LiDAR) Digital Terrain Model (DTM). A review of LiDAR ground elevation data shows that the site is generally flat at approximately 48m AOD (Figure 2).

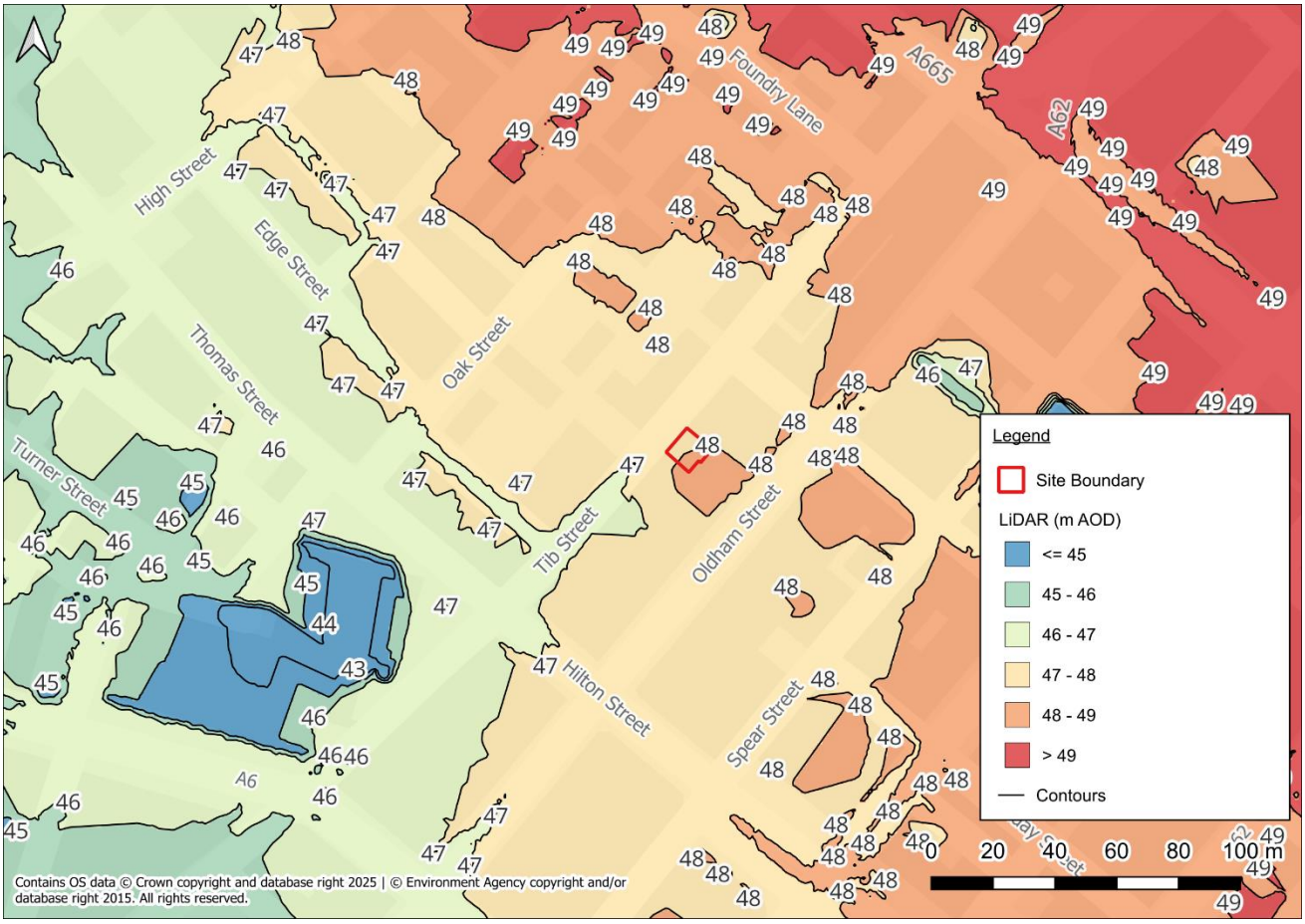


Figure 2: LiDAR Plan

2.6 Geology

2.6.1 Reference to the British Geological Survey (BGS) online mapping (1:50,000 scale) indicates that the site is underlain by superficial deposits of Till (Devensian) comprising Diamicton (Figure 3), underlain by bedrock deposits of Chester Formation comprising Sandstone (Figure 4).



Figure 3: Superficial Deposits

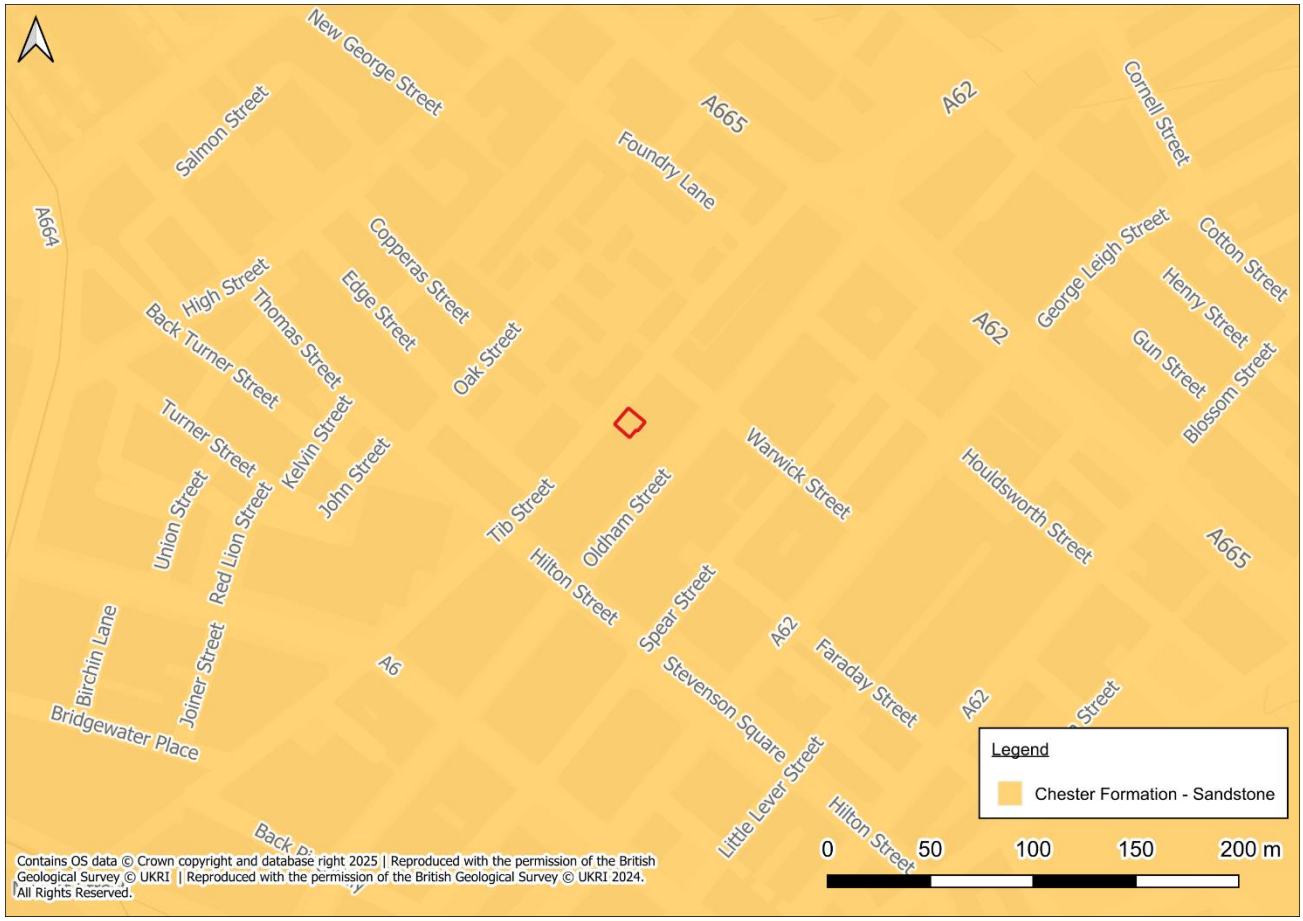


Figure 4: Bedrock Deposits

2.6.2 The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a site-specific basis.

2.6.3 There is a historic BGS borehole (BGS reference SJ89NW545) located at the junction of Tib Street and Thomas Street, approximately 85m south-west of the site (NGR 384448, 398544). The BGS record outlines the following underlying geology:

- Concrete to 0.3m below ground level (bgl);
- Brick wall to 2.4m bgl;
- Made Ground (soft brown clay with brick rubble) to 2.7m bgl;
- Stiff Brown Boulder Clay to 6.9m bgl;
- Firm brown laminated clay to 9.5m bgl;
- Hard brown boulder clay to 13m bgl; and
- Very dense brown sand with gravel to 13.4m bgl.

2.6.4 It is noted that no groundwater was encountered within the borehole record.

2.7 Hydrogeology

2.7.1 According to the EA's Aquifer Designation data, obtained from MAGIC Map's online mapping [accessed 25/08/2025], the underlying superficial deposits of Devensian Till are classified as Unproductive Strata. The underlying Bedrock Deposits of Chester Formation are classified as Principal Aquifer.

2.7.2 According to Soilscapes Mapping, the site is located in *'slowly permeable seasonally wet acid loamy and clayey soils'*.

2.7.3 The EA's 'Source Protection Zones' data, obtained from MAGIC Map's online mapping [accessed 25/08/2025] indicates that the site is not located within a Groundwater Source Protection Zone.

2.8 Local Drainage

2.8.1 Public sewer records have been obtained from United Utilities and are included in Appendix C, which indicate that there is a 450mm combined sewer located within Tib Street, which runs in a south-westerly direction. It is assumed that the existing development connects to this sewer.

2.9 Development Proposals

2.9.1 The proposed development is for the demolition of the existing building located at 78 – 80 Tib Street and the erection of a mixed-use commercial development comprising restaurant and retail uses. See Appendix D for details on the proposed development and plans.

2.9.2 The proposed hardstanding will retain the current area of hardstanding of approximately 110 m^2 (or 100% of the total site area) comprising.

3. Relevant Planning Policy and Guidance

3.1 Introduction

3.1.1 The aim of this section of the report is to discuss the main aspects of the local and national planning policies that are relevant to any proposed development on the site and relevant guidance and legislation.

3.2 Assessment of Flood Risk

3.2.1 The flood risk from fluvial (Main Rivers) and coastal flooding is assessed through the use of the EA Flood Maps (flood risk from rivers or the sea). This map defines three zones of different flood risk, the third of which is subdivided into two categories:

- Zone 1 "Low probability of flooding" – This zone comprises land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%);
- Zone 2 "Medium probability of flooding" – This zone comprises land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year;
- Zone 3a "High probability of flooding" – This zone comprises land assessed as having a 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; and
- Zone 3b "Functional floodplain" – A sub-part of Zone 3, this zone comprises land where water has to flow or be stored in times of flood. This zone is not normally included within the national Flood Map for Planning and is calculated where necessary using detailed hydraulic modelling.

3.3 National Planning Policy Framework

3.3.1 Flood risk in England is normally considered through the planning process in the NPPF (2025), produced by Ministry of Housing, Communities & Local Government.

3.3.2 The principal aim of the NPPF assessment of flood risk is that:

- Greater than one hectare in size;
- All proposals for new development (including minor development and change of use) in Flood Zones 2 and 3;
- Or in an area within Flood Zone 1 which has critical drainage problems (as notified to the local planning authority by the EA);
- Land identified in a Strategic Flood Risk Assessment (SFRA) as being at increased flood risk in the future; and
- Where proposed development or a change of use to a more vulnerable class may be subject to other sources of flooding.

3.3.3 A key part of the NPPF is that a proposed development must first pass a "Sequential Test" to demonstrate that the overall development proposal is appropriate in terms of flood risk. It ensures that a sequential approach is followed to guide new development to areas with the lowest probability of flooding.

Exception Test

3.3.4 The Exception Test determines whether the benefits of the proposed development will outweigh the potential flood risk.

Vulnerability Classification

3.3.5 In accordance with Annex 3 of the NPPG: Flood Risk and Coastal Change, commercial developments are considered to be **'Less Vulnerable'.**

Table 1: Flood Risk Vulnerability Classification (from Table 2 of the online Planning Practice Guidance

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	✗	✗	✗	✓

✓ development is permitted

✗ development is not permitted

3.3.6 Table 2 of the NPPG (reproduced above as Table 1), states that 'less vulnerable' development is considered appropriate within Flood Zone 1. The development therefore passes the flood risk Sequential Test and the Exception Test does not need to be applied.

3.4 Local Policy

3.4.1 Manchester City Council has several local policy documents which inform development.

Places for Everyone

3.4.2 The Places for Everyone Joint Development Plan 2022 - 2039, adopted with effect in March 2024, is a long-term plan for jobs, new homes and sustainable growth. The plan covers the areas Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan.

'Policy JP-S4: Flood Risk and the Water Environment

An integrated catchment-based approach will be taken to protect the quantity and quality of water bodies with reference to the North West River Basin Management Plan and managing flood risk, by:

1. Returning rivers to a more natural state, where practicable;

2. Working with natural processes and adopting a natural flood management approach to slow the speed

of water drainage and intercept water pollutants;

3. Locating and designing development so as to minimise the impacts of current and future flood risk, including retrofitting or relocating existing developments, infrastructure and places to increase resilience to flooding;

4. Expecting developments to manage surface water run-off through sustainable drainage systems and as close to source as possible. Development should achieve greenfield run-off rates unless it is demonstrated to be impracticable. District local plans should consider setting more detailed surface water drainage policies to reflect local circumstances, including alternative surface water discharge rates, such as in areas with critical drainage issues;

5. Ensuring that sustainable drainage systems:

i. Are designed to provide multifunctional benefits wherever possible, including for water quality, nature conservation and recreation;

ii. Avoid adverse impacts on water quality and any possibility of discharging hazardous substances to ground;

iii. Are delivered in a holistic and integrated manner, including on larger sites split into different phases; and

iv. Are managed and maintained appropriately to ensure their proper functioning over the lifetime of the development.

6. Securing the remediation of contaminated land and the careful design of developments to minimise the potential for urban diffuse pollution to affect the water environment; and

7. As a minimum, residential development should meet the mandatory water efficiency standard of 125 litres/person/day as set out in Building Regulations. District local plans may and should consider setting a tighter water efficiency standard of 110 litres/person/day where there is a clear local need with reference to national guidance on housing optional technical standards.'

Manchester City Council Core Strategy

3.4.3 The Core Strategy 2022 – 2027 adopted July 2012 is the key document in the Local Plan and sets out the long-term strategic policies for Manchester's future development.

'Policy EN 14: Flood Risk

- *In line with the risk-based sequential approach contained within PPS25, development should be directed away from sites at the greatest risk of flooding, and towards sites with little or no risk of flooding; this should take account of all sources of flooding identified in the Manchester-Salford-Trafford Strategic Flood Risk Assessment (SFRA).*
- *In addition to the requirements for site-specific Flood Risk Assessments (FRAs) set out in PPS25, an appropriate FRA will also be required for all development proposals, including changes of use, on sites greater than 0.5ha within Critical Drainage Areas (CDAs) and Canal Hazard Zones*

identified in the SFRA.

- *All new development should minimise surface water run-off, including through Sustainable Drainage Systems (SUDS) and the appropriate use of Green Infrastructure. Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach / rates will be required.*
- *The City of Manchester contains many sections of rivers which are culverted or 'hidden'; where these are indicated in the SFRA beneath the proposed development site, further investigation will be required and the development proposal should take this into account; where feasible and appropriate development should seek to open up culverted/hidden rivers to reduce the associated flood risk and danger of collapse, taking advantage of opportunities to enhance biodiversity and Green Infrastructure.'*

3.5 Climate Change

3.5.1 The EA 'Flood Risk Assessments: Climate Change Allowances' Guidance states that Less Vulnerable developments should utilise the Central Allowance. The EA's Online Peak River Flow Map indicates that within the Irwell Management Catchment, the Central Allowance equates to 19% for the 2050s epoch and 35% for the 2080s epoch.

3.5.2 The EA's Online Peak Rainfall Allowance Map indicates that within the Irwell Management Catchment, the central allowance equates to 25% for the 2050s epoch and 30% for the 2080s epoch.

3.6 Consultation

3.6.1 As the site is located wholly in Flood Zone 1, the EA has not been contacted as they will not provide any specific product data for the site.

3.6.2 The site is not located within an IDB.

4. Assessment of Flood Risk

4.1 Tidal Flood Risk

4.1.1 The site is situated at a minimum of approximately 48m AOD and is significantly above sea level.

4.1.2 Therefore, it can be concluded that the site is at **Negligible** risk from tidal flooding.

4.2 Fluvial Flood Risk

4.2.1 According to the EA's Flood Map for Planning (updated August 2025), the site is situated wholly within Flood Zone 1, an area considered to have a 0.1% chance or lower of flooding from rivers. Following the August 2025 update which incorporates climate change extents up to the year 2125, the site is predicted to remain unaffected by fluvial flood risk.



Figure 5: EA's Flood Map for Planning

4.2.2 The nearest watercourse is the Rochdale Canal which is located approximately 410m to the south-east of the site at its closest point.

4.2.3 The River Irwell also runs through Manchester City, although lies approximately 725m west of the site. The River Irwell is a Main River (under the jurisdiction of the EA).

4.2.4 The Environment Agency's (EA) 'Historical Flood Map' indicates that there are no records of the site having flooded in the past. However, this does not confirm that the site has never experienced flooding, only that no such events have been officially recorded.

Summary

4.2.5 The site is therefore considered to be at **Low** risk of fluvial flooding.

4.3 Surface Water Flood Risk

4.3.1 The EA 'Flood Risk from Surface Water' map (Figure 6) indicates that the site is at Medium to High risk of surface water flooding, meaning it has a 1 - ≥3.3 % annual probability of flooding.

4.3.2 During the High risk scenario, the site is expected to remain flood free. During the Medium risk scenario, flood extents are expected to encroach into the site however remain below 300mm and are therefore considered passable to people and vehicles. During the Low risk (between 0.1% and 1% AEP) scenario, the mapping indicates that depths are expected at 300 mm – 600 mm across the site.

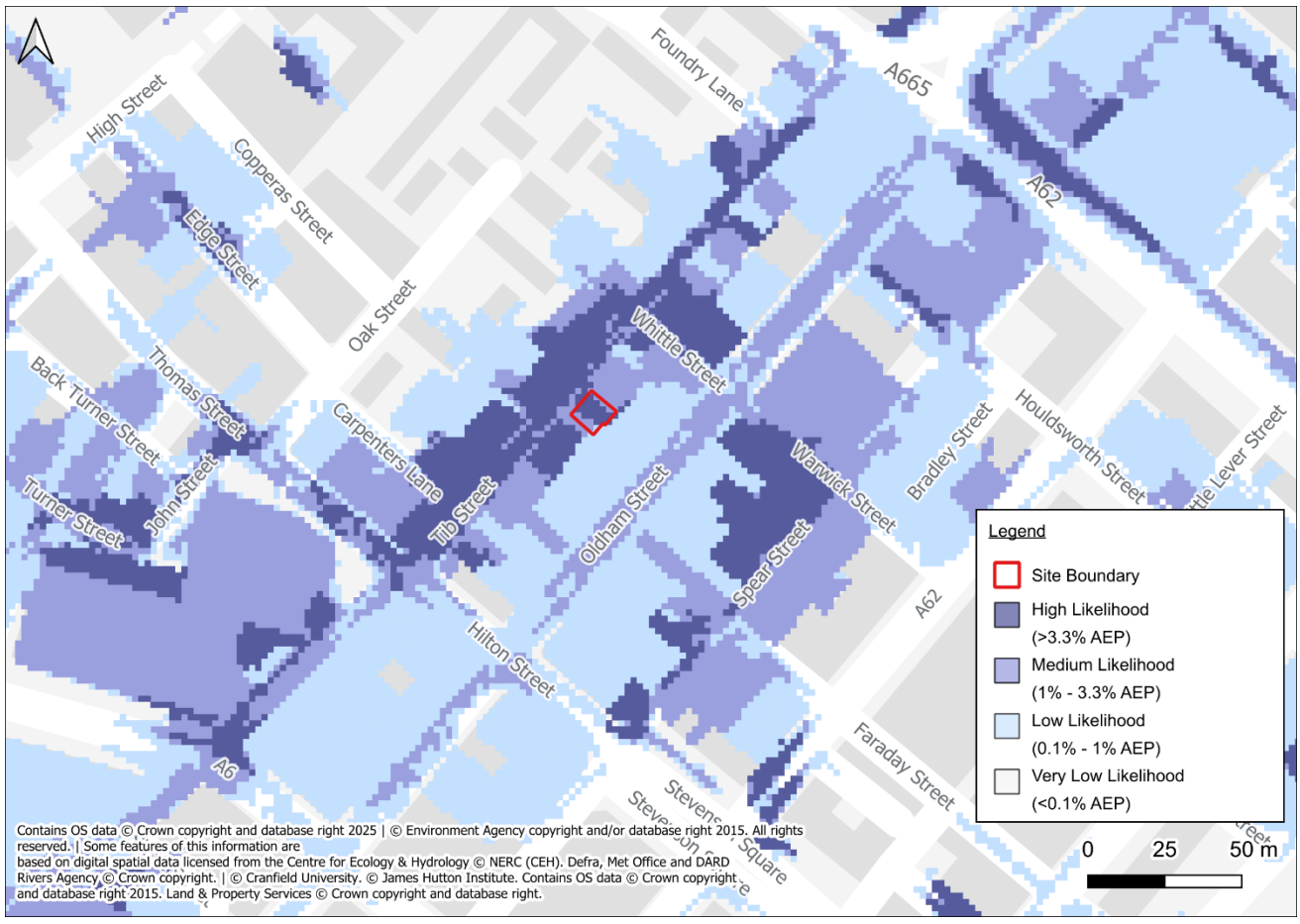


Figure 6: EA's Long-Term Flood Risk Map (Flood Risk from Surface Water)

4.3.3 The Manchester City Council Core Strategy policy EN 14 – Flood Risk indicates that there are many sections of culverted rivers beneath the developed city. These are indicated on the Hidden Manchester

Map [12] which shows the culverted or "hidden" River Tib running beneath Tib Street. The culverted watercourse runs from Miles Platting and eventually discharges into the River Medlock, and has been culverted for around two centuries. The watercourse is also stated to have been rerouted through sewers a number of times. Given the presence of the combined sewer located in Tib Street (as indicated on the United Utilities asset plans in Appendix C), it is assumed that the watercourse is rerouted through the sewer in this location. It is considered that much of the surface water flood risk at this location along Tib Street is associated with the culverted watercourse within the road – see Section 4.3.6 for further commentary.

4.3.4 The local policy suggests that where feasible and appropriate, development should seek to open up or 'daylight' the culverted watercourse to reduce associated flood risk and danger of collapse. However, given the urban nature of Tib Street and the surrounding area, this is not considered to be feasible or appropriate for the proposed development in this location.

4.3.5 It should be noted that given the presence of an existing building within the site, the proposed development plans are not considered to obstruct or divert any existing flow routes. The building footprint is not expected to increase as a result of the proposed development.

4.3.6 Access and egress should be sought from Tib Street, however during times of surface water flooding, site users may choose to remain on-site, seeking safe refuge at first floor level and above.

Third Party Information

4.3.7 The 2011 Level 2 SFRA mapping shows the site to be within the Conurbation Core Critical Drainage Area (CDA). The SFRA confirms that "*surface water flow paths in this CDA are largely linked to the natural floodplains of 'hidden' or 'lost' culverted watercourses that run through this area, particularly in Manchester city centre"*. However, Tib Street is not highlighted as an area at particular risk within the CDA. The SFRA states that "*surface water run-off from these sites should not increase as a result of development (reduced run-off should be sought if possible in some areas) and not discharge into the combined sewer system. Many of these sites lie within the Conurbation Core Critical Drainage Area and managing surface water discharges from development and exceedance flows is critical."* However, the proposed development is not considered to increase flood risk elsewhere and is expected to replace flows already discharged into the combined sewer.

4.3.8 The SFRA also states that "*considering both sewer and surface water flooding together is considered to be appropriate when taking a strategic view of flood risk in an extreme event from both these sources*".

[12] https://hidden-manchester.org.uk/#/waterways/river-tib

Summary

4.3.9 It can therefore be concluded that the site is at **Low to Moderate** risk of surface water flooding. The following recommendations are advised:

- Ensure any on-site drainage is well maintained through a maintenance regime involving a regular monitoring and clearing of the drainage system;
- Thresholds to the building should be appropriately drained to prevent surface water ingress; and
- Incorporate flood resistance / resilience measures, such as flood proof materials (flood resistant bricks / blocks / mortars), and flood proof doors / windows at ground floor level into the design where feasible.

4.4 Groundwater Flood Risk

4.4.1 The superficial deposits comprise Till which is underlain by Chester Formation.

4.4.2 The EA's Long Term Flood Risk Map indicates that groundwater flooding is unlikely in the area. The existing site is wholly impermeable and therefore this limits the vertical migration of groundwater.

4.4.3 There is a historic BGS borehole (BGS reference SJ89NW545) located at the junction of Tib Street and Thomas Street, approximately 85m south-west of the site (NGR 384448, 398544). The borehole record indicates that there was no groundwater encountered.

Third Party Information

4.4.4 The 2011 Level 2 SFRA states that "*the risk of groundwater flooding should be considered when assessing suitable SUDS techniques at a strategic level and in the design of buildings*". The accompanying SFRA groundwater flooding map suggests that the site is not within an area of groundwater flood risk.

Summary

4.4.5 It can therefore be concluded that the risk of groundwater flooding is **Low.**

4.5 Sewer Flooding

4.5.1 Sewer flood risk is typically hard to predict. The United Utilities sewer plans (included in Appendix C) there is a 450mm combined sewer located within Tib Street, which runs in a south-westerly direction. It is assumed that the existing development connects to this sewer.

4.5.2 The 2011 Level 2 SFRA states "*it should be borne in mind that the sewer network in places across the Greater Manchester area was designed to drain less development than exists today. Development (both planned for and urban creep) has increased the coverage of impermeable surfaces and added flow over time and the network is known to be at capacity in many places. The frequent localised flooding experienced in many parts of Greater Manchester, and Salford in particular in this study area, is testament to this problem. During extreme flood conditions it is expected that all drainage systems will be overloaded and as result there will be additional foul flooding*". The SFRA also states that "*considering both sewer and surface water flooding together is considered to be appropriate when taking a strategic*

view of flood risk in an extreme event from both these sources".

4.5.3 It can therefore be concluded that the risk of sewer flooding is considered to be **Low to Moderate**.

4.6 Reservoir and Canal Flooding

4.6.1 There are no canals within the close vicinity of the site, the closest canal to the site is the Rochdale Canal located approximately 410m from the site. The Rochdale Canal is controlled via a series of locks, weirs and sluices and is not considered to be a risk to the site.

4.6.2 The EA 'Flood Risk from Reservoirs' map shows that the site is not at risk of flooding from reservoirs.

4.6.3 It can therefore be concluded that there is **Negligible** risk of flooding from artificial sources.

4.7 Summary of Flood Risk

4.7.1 It can be concluded that the site is at **Negligible to Low** risk of flooding from fluvial, tidal, groundwater, canal and reservoir flooding. Given the presence of the "hidden" River Tib and a combined sewer within Tib Street, surface water and sewer flooding, when considered together, are considered to pose a **Low to Moderate** risk to the site. The following recommendations are made:

- Ensure any on-site drainage is well maintained through a maintenance regime involving a regular monitoring and clearing of the drainage system;
- Thresholds to the building should be appropriately drained to prevent surface water ingress; and
- Incorporate flood resistance / resilience measures, such as flood proof materials (flood resistant bricks / blocks / mortars), and flood proof doors / windows at ground floor level into the design where feasible.

Table 2: Summary of Risk

Source of Flooding		Summary of Risk
Tidal Flood Risk		**Negligible**
Fluvial Flood Risk		**Low**
Surface Water Flood Risk		**Low to Moderate**
Groundwater Flood Risk		**Low**
Artificial Sources of Flood Risk	**Sewer Flooding**	**Low to Moderate**
	Reservoir and Canal Flooding	**Negligible**

5. Drainage Strategy

5.1 Introduction

5.1.1 The proposed development is for the demolition of the existing building located at 78 – 80 Tib Street and the erection of a mixed-use commercial development comprising restaurant and retail uses.

5.1.2 The development proposals will retain the current 100% of hardstanding at the site. In order to ensure the proposed development will not increase flood risk elsewhere, surface water will be discharged from the site at a controlled rate.

5.1.3 The Places for Everyone Joint Development Plan states "*Development should achieve greenfield run-off rates unless it is demonstrated to be impracticable"*.

5.1.4 The site is located within an area that requires a 30% climate change allowance to be applied to the peak rainfall values and has been incorporated below.

5.2 Drainage Hierarchy

5.2.1 The recommended surface water drainage hierarchy (Paragraph 080 of the NPPG: Flood Risk and Coastal Change) is to utilise soakaway systems or infiltration as the preferred option, followed by discharging to an appropriate watercourse. If this is not feasible, the final option is to discharge to an existing public sewer.

Surface Water Discharge to Soakaway

5.2.2 The first consideration for the disposal of surface water is infiltration (soakaways and permeable surfaces). As described above, the site is underlain by superficial deposits of Till (Devensian) comprising Diamicton, underlain by bedrock deposits of Chester Formation comprising Sandstone.

5.2.3 The site is wholly brownfield and located in heavily urbanised surroundings. Given the small size of the site (0.01 Ha) and the proposed development which comprises nearly the entire site area, soakaways are not considered to be feasible.

Surface Water Discharge to Watercourse

5.2.4 The nearest watercourse to the site is the Rochdale Canal which is located approximately 410m to the south-west; therefore, discharge to watercourse is not considered a feasible option.

Surface Water Discharge to Surface Water Sewer

5.2.5 As per the United Utilities sewer plans in Appendix C, there are no surface water sewers located at the site or in the vicinity. Therefore, discharge to combined sewer is the next option for consideration.

Surface Water Discharge to Combined Sewer

5.2.6 Where disposal of surface water to watercourse is not possible, a connection to the public sewer system

is the final consideration. As discharge to soakaway is not considered to be practicable given the limited space available on-site, a connection to the public combined sewer network as per the existing situation is considered to be the most appropriate option, and adheres to the Drainage Hierarchy. A developer enquiry should be submitted to United Utilities to confirm capacity within the sewer system and obtain agreement for any future connections.

5.3 Surface Water Discharge

5.3.1 Local policy requires sites to achieve greenfield discharge rates, unless demonstrated to be impracticable. The existing greenfield runoff rates have been estimated using ReFH2. The calculated QBAR for the proposed impermeable area of 110m^2 is 0.11l/s as shown in Table 3 below which is considered insufficient to meet the minimum flow rate for a Hydrobrake flow control device. Therefore, for the purpose of this assessment, brownfield runoff rates were also calculated using the Modified Rational Method (2.78 x existing hardstanding area (Ha) x rainfall), see Table 3 below. The proposed hardstanding area was estimated from the site boundary provided by the client, which shows the hardstanding area is to be retained as 100% impermeable.

Table 3: Runoff Rates

Return Period (Years)	Greenfield Runoff Rate (l/s)	Brownfield Runoff Rate (l/s)
1 in 2	0.11	0.8
1 in 10	0.2	1.2
1 in 30	0.26	1.5
1 in 100	0.34	1.9
1 in 1000	0.56	2.8

5.3.2 For the purposes of this assessment (given that the minimum flow required is not met by using QBAR) it is proposed to restrict surface water runoff to 1l/s during all events up to and including the 1 in 100 year plus 30% climate change event. It should be noted that the calculated QBAR and respective runoff rates will need confirming at the detailed design stage, as they are currently based on estimated (indicative) impermeable areas only. The above rates are outline stage values.

5.4 Sustainable Drainage Systems

5.4.1 Attenuation storage should be provided in the form of Sustainable Drainage Systems (SuDS) where practical. Causeway Flow calculations have been undertaken to support the strategy (see Appendix E) which suggests in order to accommodate the 1 in 100 year plus 30% climate change rainfall event, attenuation storage of 1.6m^3 is required. The following SuDS options have been considered:

Soakaways

5.4.2 As described above, soakaways are not considered to be feasible within the site.

Swales, Detention Basins and Ponds

5.4.3 Given the proposed layout and the limited space available on-site, there is insufficient space available on site to utilise ponds, basins or swale as above ground attenuation features.

Filter Drains/Strips

5.4.4 Filter drains are trenches filled with stone/gravel that create temporary subsurface storage for the filtration, attenuation, and conveyance of surface water runoff. Ideally, filter drains receive lateral inflow from adjacent impermeable surfaces pretreated over a filter strip. Filter drains can help manage peak flows by naturally limiting rates of conveyance through the filter medium and by providing attenuation storage when the rate of flow at the outlet is controlled.

Bioretention Systems

5.4.5 Bioretention systems (including rain gardens and raised box planters) are shallow landscaped depressions that can reduce runoff rates and volumes and treat pollution. They also provide attractive landscape features and biodiversity. Bioretention systems can help reduce flow rates from a site by promoting infiltration / evapotranspiration and providing some attenuation storage. Bioretention systems can also provide very effective treatment functionality. Bioretention systems are a very flexible surface water management component that can be integrated into a wide variety of developments / densities using different shapes, materials, planting, and dimensions. Given the very small amount of attenuation required to accommodate the proposed development, bioretention systems are considered to be appropriate and can be retrofitted within the proposed development. This should be considered in further detail at the detailed design stage. A raingarden detail drawing by Manchester City Council is available as Appendix F.

Rainwater Harvesting

5.4.6 The attenuation benefits provided through the use of rainwater harvesting are considered to be limited and would only be realised when the tanks were not full. However, rainwater harvesting techniques could be incorporated within the final design.

Green Roofs

5.4.7 Green roofs can provide benefits in terms of surface water attenuation, water quality, biodiversity and amenity. However, green roofs are not identified on the current development plans. Given the constrained nature of the site, the limited attenuation volume required, and the additional structural loading, construction complexity and long term maintenance associated with green roof systems, they are not considered the most proportionate SuDS solution for this development at this stage. The benefits that could be achieved through a green roof would be limited relative to the additional cost and maintenance burden when compared with alternative SuDS measures.

Blue Roofs

5.4.8 Blue roofs are a form of roof-based attenuation which temporarily store rainfall on the roof surface and release it at a controlled rate, typically via flow controls or restricted outlets. Unlike green roofs, blue



roofs do not rely on planting or growing media and therefore avoid many of the structural, maintenance and irrigation requirements associated with green roof systems.

5.4.9 Given the highly constrained nature of the site, the lack of available ground level space, and the relatively small volume of attenuation required (1.6m^3), a blue roof could provide an effective and proportionate means of managing surface water runoff at source. Blue roofs are particularly well suited to dense urban development's where conventional SuDS features are difficult to accommodate and can be designed to work alongside conventional roof drainage systems.

5.4.10 At this stage, blue roofs are not shown on the proposed development plans and their feasibility would be subject to confirmation through detailed structural design, loading capacity checks and roof layout at the detailed design stage. However, in principle, a blue roof represents a viable alternative or complementary SuDS measure to bioretention systems for providing attenuation and controlled discharge from roof areas.

Porous/Permeable Surfacing

5.4.11 Given the limited space on-site to provide permeable surfacing as identified on plans, permeable surfacing is not considered to be a feasible method of SuDS for incorporation across the site.

5.5 Preferred Drainage Scheme

5.5.1 Infiltration (e.g. soakaways or permeable surfaces) is not considered to be a practical option for this site due to the constrained urban setting and the absence of available ground level space. Surface water runoff will therefore discharge to the existing combined public sewer located within Tib Street. As the proposals comprise the demolition of the existing building and redevelopment of the site, with surface water runoff controlled and attenuated prior to discharge, the development will provide betterment over the existing situation. Discharge will be restricted to 1.0 l/s, with surface water runoff up to the 1 in 100 year plus 30% climate change allowance event attenuated on site. Based on the outline drainage calculations (impermeable area of approximately 110 m^2), a total attenuation volume of approximately 1.6 m^3 will be required to achieve the discharge rate. This storage is anticipated to be provided through a combination of roof-based attenuation (blue roof) and or raised SuDS features such as bioretention planters, subject to detailed design, structural considerations and final layout. The final SuDS configuration, flow control and discharge arrangement will be confirmed at the detailed design stage. Any formal agreement required by United Utilities will be progressed through the appropriate application process.

5.5.2 In addition, to manage surface water at the High Street frontage and reduce the risk of ponding and wind-driven rainfall at entrance thresholds, it is proposed to incorporate a full length linear drainage channel along the building frontage, with local falls and threshold detailing to be confirmed at the detailed design stage.

5.5.3 The proposed surface water drainage scheme will ensure no increase in runoff from the site over the lifetime of the development and will provide betterment over the existing drainage arrangement.

5.6 Surface Water Treatment

5.6.1 In accordance with the CIRIA C753 publication 'The SuDS Manual' (2015), commercial roofs have a 'low' pollution hazard level. There are no roads proposed as part of the proposed development. Table 4 below shows the pollution hazard indices for each land use.

Table 4: Pollution Hazard Indices

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Other Roofs (typically commercial/industrial roofs)	Low	0.5*	0.2**	0.4

Table extract taken from the CIRIA C753 publication 'The SuDS Manual' – Table 26.2

*Indices values range from 0-1.

**up to 0.8 where there is potential for metals to leach from the roof.

5.6.2 Where practical, runoff from roofs will be directed to bioretention systems. Table 5 below demonstrates that bioretention systems provide sufficient treatment.

Table 5: SuDS Mitigation Indices

	Mitigation Indices		
Type of SuDS	**Total Suspended Solids (TSS)**	**Metals**	**Hydrocarbons**
Bioretention System	0.8	0.8	0.8

Table extract taken from the CIRIA C753 publication 'The SuDS Manual' -Table 26.3

5.7 Maintenance

5.7.1 Maintenance of communal drainage features such as bioretention systems will be the responsibility of the site owner.

5.7.2 Maintenance schedules for the proposed bioretention systems are included in Appendix G. Maintenance of the separator will be as per the manufacturer's guidance.

5.8 Foul Water Discharge

5.8.1 It is proposed that foul water is discharged to the public combined sewer located within Tib Street, subject to agreement by United Utilities.

6. Conclusions and Recommendations

6.1 Conclusions

6.1.1 The proposed development is for the demolition of the existing building located at 78 – 80 Tib Street and the erection of a mixed-use commercial development comprising restaurant and retail uses.

Flood Risk

6.1.2 Based on the available information and assessment undertaken, the site is considered to be at **Negligible to Low** risk from fluvial, tidal, groundwater, canal and reservoir flooding. Given the presence of the "hidden" River Tib and a combined sewer within Tib Street, surface water and sewer flooding, when considered together, are considered to pose a **Low to Moderate** risk to the site.

6.1.3 The following recommendations are made:

- Ensure any on-site drainage is well maintained through a maintenance regime involving regular monitoring and clearing of the drainage system;
- Thresholds to the building should be appropriately drained to prevent surface water ingress, including the use of local falls and linear drainage where required; and
- Incorporate flood resistance and resilience measures, such as flood-resistant materials (flood-resistant bricks, blocks and mortars) and flood-resistant doors and windows at ground floor level, where feasible.

Drainage Strategy

6.1.4 The proposed development will retain a 100% impermeable drainage area in the form of buildings and access, with a total impermeable area of approximately 110 m^2.

6.1.5 The proposed drainage strategy is based on controlled discharge of surface water to the existing combined sewer located in Tib Street. As the proposals comprise demolition and redevelopment of the site, with surface water runoff attenuated and restricted prior to discharge, the development will provide betterment over the existing drainage arrangement.

6.1.6 Surface water runoff will be restricted to 1.0 l/s, with attenuation provided on site for events up to the 1 in 100 year plus 30% climate change allowance. Attenuation is anticipated to be provided through a combination of roof-based attenuation (blue roof) and or raised SuDS features such as bioretention planters, subject to detailed design and structural considerations.

6.1.7 Overall, the proposed drainage scheme accords with the principles of sustainable drainage and will ensure no increase in runoff from the site over the lifetime of the development, while providing betterment over the existing drainage arrangement and managing exceedance flows in a controlled manner.

Reference of Terms

Annual Exceedance Probability (AEP)

The AEP is the chance or probability of a natural hazard event (usually a rainfall or flooding event) occurring annually and is usually expressed as a percentage.

Aquifers

- Principal Aquifers are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.
- Secondary A Aquifers are 'permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers'.
- Secondary B Aquifers are 'predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers'.
- Secondary Undifferentiated Aquifers are assigned in 'cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type'.
- Unproductive Strata are 'rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow'.

Canal Failure

Canal failure can occur due to high-intensity rainfall or structural failure and can be dangerous due to the rapid release of large volumes of water. It is typically limited to raised canal reaches and can result in a rapid peak in flow followed by a gradual reduction.

Climate Change (CC)

A change in global or regional climate patterns. For flood risk, CC are assessed in terms of allowances which are predictions of anticipated change for peak river flow, peak rainfall intensity, sea level rise and offshore wind speed and extreme wave height. CC scenario data exists across different epochs (time periods) to determine the needs for climate resilience measures. CC data is requested as part of an EAPD request. If a separate ESG Flood Risk and CC Assessment is needed, additional CC data will be required.

Environment Agency (EA) and EA Product Data (EAPD)

The EA is the lead organisation for providing flood and coastal risk management and warnings of flooding from Main Rivers and on the coast. For sites within or in close elevational proximity to Flood Zone 2 or Flood Zone 3, EAPD is ordered to obtain more detailed flood risk data such as flood depths, breach and overtopping mapping and fluvial/tidal risks associated with CC.

Fluvial Flooding

Fluvial flooding typically occurs when a river's capacity is exceeded, and the excess water overtops the riverbanks. It can also occur when the watercourse has a high level downstream, perhaps due to structures or blockage, thus limiting conveyance. This creates a backup of water which can overtop the banks. Typical flooding issues occur when the natural floodplain has been urbanised and the river has been confined. EA mapping defines three zones of different flood risk, the third of which is subdivided into two categories:

- Zone 1 “Low probability of flooding” – This zone comprises land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%);
- Zone 2 “Medium probability of flooding” – This zone comprises land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year;
- Zone 3a “High probability of flooding” – This zone comprises land assessed as having a 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; and
- Zone 3b “Functional floodplain” – A sub-part of Zone 3, this zone comprises land where water has to flow or be stored in times of flood. This zone is not normally included within the national Flood Map for Planning and is calculated where necessary using detailed hydraulic modelling.

Groundwater Flooding

Groundwater flooding is caused by the emergence of water from beneath the ground at either point or diffuse locations when the natural level of the water table rises above ground level. This can result in deep and long-lasting flooding of low-lying or below-ground infrastructure such as underpasses and basements. Groundwater flooding can cause significant damage to property, especially in urban areas, and can pose further risks to the environment and ground stability.

Sewer Flooding

Flooding from sewers primarily occurs when flow entering a system exceeds available capacity or if the network capacity has been reduced through blockage or collapse. In the case of surface water sewers that discharge to watercourses, the same effect can be caused as a result of high-water levels in the receiving watercourse. As a result, water can begin to surcharge the sewer network, emerging at ground level through gullies and manholes and potentially causing flooding to highways and properties. If this occurs flooding can represent a significant hazard to human health due to the potential for contaminants in flood water.

Source Protection Zones

Source Protection Zones (SPZs) are areas of land through which water infiltrates into a groundwater borehole, well or spring that is used for public drinking water supply. These zones show the risk of contamination from potential pollution. SPZ’s have been created as public facing boundaries where discrete groundwater bodies within SPZ’s have been dissolved on zone number where common boundaries and overlaps have been removed. SPZs are defined around large and public potable groundwater abstraction sites. The purpose of SPZs is to provide additional protection to safeguard drinking water quality through constraining the proximity of an activity that may impact upon a drinking water abstraction.

- Zone 1 (Inner Protection Zone) is defined by a travel time of 50-days or less from any point within the zone at, or below, the water table. Additionally, the zone has as a minimum a 50-metre radius.
- Zone 2: (Outer Protection Zone) - This zone is defined by the 400-day travel time from a point below the water table. Additionally, this zone has a minimum radius of 250 or 500 metres, depending on the size of the abstraction.
- Zone 3: (Total catchment) - This zone is defined as the total area needed to support the abstraction or discharge from the protected groundwater source. A further Zone 4, or ‘Zone of Special Interest’ was previously defined for some groundwater sources.

Surface Water Runoff

Surface water runoff is defined as water flowing over the ground that has not yet entered a drainage channel or similar. It usually occurs because of an intense period of rainfall which exceeds the infiltration capacity of the ground. Typically, runoff occurs on sloping land or where the ground surface is relatively impermeable. The

ground can be impermeable either naturally due to the soil type or geology, or due to development which places impervious material over the ground surface (e.g. paving and roads).

Tidal Flooding

Tidal flooding is caused by high tides coinciding with a low-pressure storm system which raises sea and tidal water levels, overwhelming coastal and river defences. This may be made worse by gale-force winds blowing the raised body of water up tidal river basins some distance from the coast, due to floodwater being forced up the tidal reaches of rivers and estuaries. Such flooding may become more frequent in future years due to rising sea levels.

Reservoirs Failure

Reservoir failure can be a particularly dangerous form of flooding as it results in the sudden release of large volumes of water that can travel at high velocity, causing deep and widespread flooding. The likelihood of this occurring is low as large reservoirs are managed in accordance with the Reservoirs Act 1975. The EA's online reservoir inundation map illustrates the maximum flood extents that could occur in the event of a reservoir.

Appendices

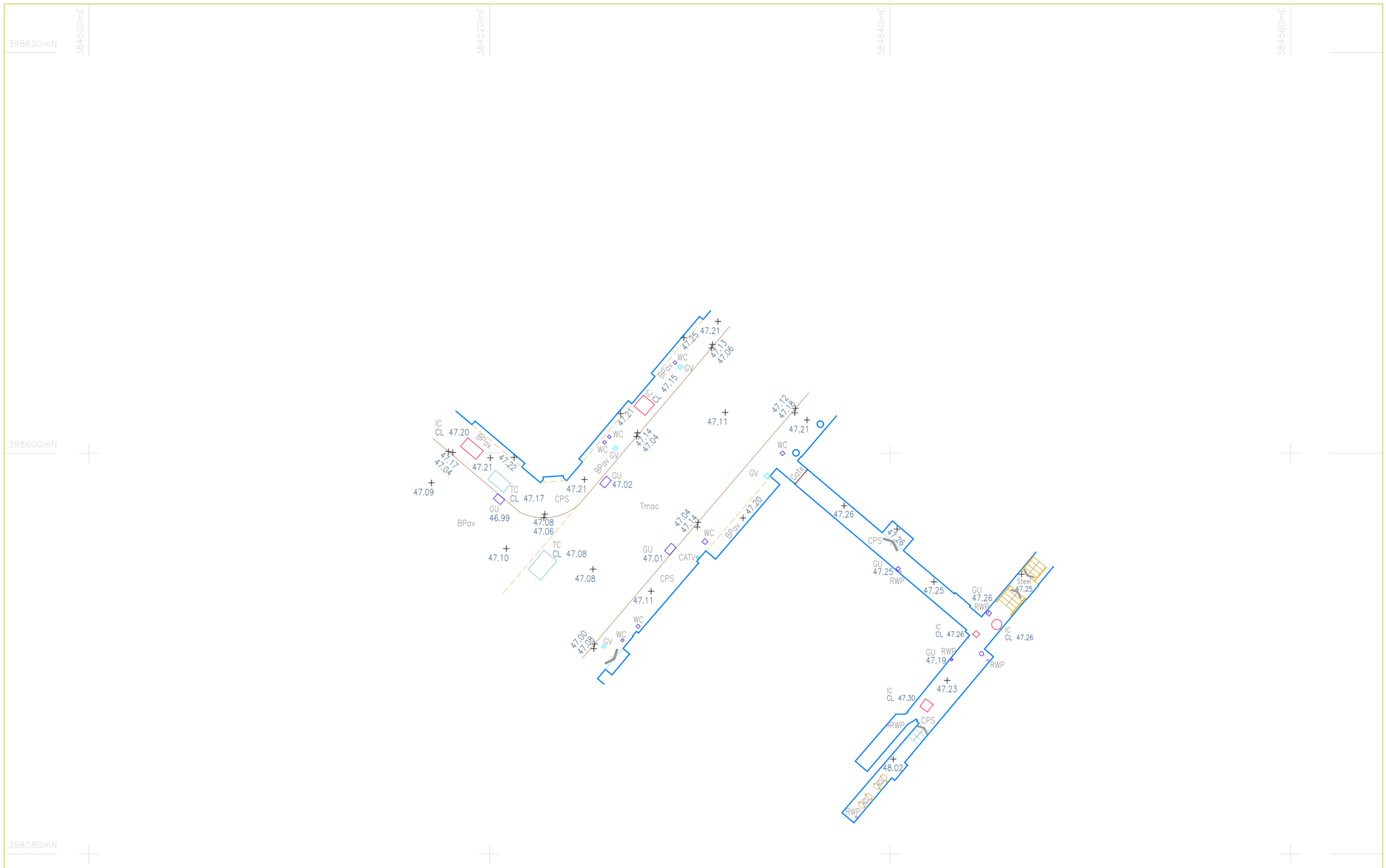
Appendix A- Limitations

Limitations

This report contains recommendations from Arthian, which are based on the information listed in the report and reflect the professional opinions of an experienced Environmental Consultant. Arthian obtained, reviewed, and evaluated information from the Client and others to prepare this report. The conclusions, opinions, and recommendations presented in this report are based on this information. However, Arthian does not guarantee the accuracy of the information provided and will not be held responsible for any opinions or conclusions reached based on information that is later proven to be inaccurate.

This report was prepared exclusively for the Client and for the specific purpose for which Arthian was instructed. It is not intended for use by anyone other than the Client without Arthian's written consent. Any unauthorized use of this report is at the sole risk of the user. Anyone using or relying on this report, other than the Client, agrees to indemnify and hold harmless Arthian from any claims, losses, or damages arising from the performance of the work by the Consultant.

Appendix B – Topographic Survey



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It is for the use only of the party to whom it has been addressed and no responsibility is accepted to any third party for the whole or part of its contents. This survey has been prepared on the basis that all information and facts, which may affect the survey, have been disclosed to Spatial Dimensions Ltd by all parties concerned and no liability, nor responsibility can be accepted, unless full disclosure has been made.

All ground features that were visible at the time of the survey have been located, however there may have been items obscured. Pipe sizes and flow direction have been visually assessed from the surface and should be considered as approximate only.

Fences shown are not necessarily legal boundaries.

All data remains in the ownership of Spatial Dimensions Ltd and any discrepancies between this survey and any other information should be reported to Spatial Dimensions Ltd.

Levels

DCL	Door Cill Level
DHL	Door Head Level
EL	Eave Level
FL	Floor Level
FRL	Flat Roof Level
PL	Parapet Level
RL	Ridge Level
SSL	Strucural Slab Level
TFL	Top of Fence Level
THL	Threshold Level
TWL	Top of Wall Level
UBL	Underside of Beam Level
USL	Generic Underside Level

Covers/Drainage

AV	Air Valve
CL	Cover Level
COH	Coal Hole
CP	Catch Pit
CTV	Cable TV
DC	Drainage Channel
EC	Electric Cover
FH	Fire Hydrant
GU	Gully
GV	Gas Valve
IC	Inspection Cover
IL	Invert Level
Int	Interceptor
KO	Kerb Outlet
MH	Manhole
Plnt	Petrol Interceptor
RE	Rodding Eye
SAway	Soakaway
SC	Stop Cock
SV	Service Valve
TC	Telecoms Cover
UTL	Unable to Lift
WC	Water Cover
WM	Water Meter
WO	Wash Out

Walls

BW	Brick Wall
CW	Concrete Wall
GW	Gabion Wall
RET	Retaining Wall
SW	Stone Wall
TW	Timber Wall

Street Furniture

BEU	Electronic Display Unit
BMI	Multi-Media Interface
BOL	Bollard
BS	Power Socket 13A
CWP	Rain Water Pipe
EAT	Electric Outlet
EP	Flag Pole
GPK	Gate Post
JB	Junction Box
LPS	Laser Power Socket 13A
LTP	Lamp Post
MK	Marker
RP	Post Box
RWP	Rain Water Pipe
WL	Wall Light
WP	Waste Pipe
WSC	Waste Stack Column
WWP	Waste Water Pipe
TBM	Temporary Benchmark
TCB	Telephone Call Box
THL	Threshold Level
TK	Tank
TL	Traffic Light
TP	Telegraph Pole
VP	Vent Pipe

Fences

CBF	Closeboard Fence
CLF	Chain Link Fence
CPS	Chestnut Paling Fence
CSF	Concrete Slab Fence
IRF	Iron Railing Fence
OBB	Open Box Beam
OBF	Open Board Fence
PRF	Post Rail Fence
PSB	Pedestrian Safety Barrier
PWF	Post Wire Fence

Surfaces

Symbols

STN	Survey Station		Foul Pipe
20.00	Spot Level		Storm Pipe
	Arch		Step/Stairs Up
	Gate	Top of Bank / Bottom of Bank	Top & Bottom Banks
25.50	Contours		
	Hedge		

Grid & Datum

Survey Grid
The survey grid is a local, plane grid coincident with Ordnance Survey National Grid and orientated to grid north.

Survey Datum
The survey is based on Ordnance Survey datum (Newlyn).

Trees

All trees sizes and heights are approximate and species have been identified to the best of the Surveyors knowledge. Where guaranteed tree species becomes important, the services of an Arborist should be seeked.

Arborist should be employed.

Notation: Diameter of Trunk / Spread / Height

Trees that have multiple boles will be annotated MB

Individual tree canopies are shown in a separate layer named CANOPIES, which for presentation purposes has been turned off.

Drainage

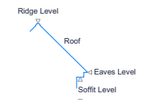
Where drainage covers have been lifted, data has been recorded for each individual manhole from the surface & connections to other manholes, pipes or gullys are assumed. Where information is required by accessing the manhole or tracing to other manholes then a services trace will be needed.

Notes

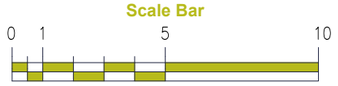
All building lines have been shown at 1.50m from respective floor levels.

Building Level Information

Eaves level indicates lowest point of roof pitch.



Scale Bar



Scale in Metres 1:200 @ A3

SPATIAL DIMENSIONS
Watermill House, Chevening Road, Chipstead, Sevenoaks, Kent, TN13 2RY
01732 458799
info@spatial-dimensions.com
www.spatial-dimensions.co.uk

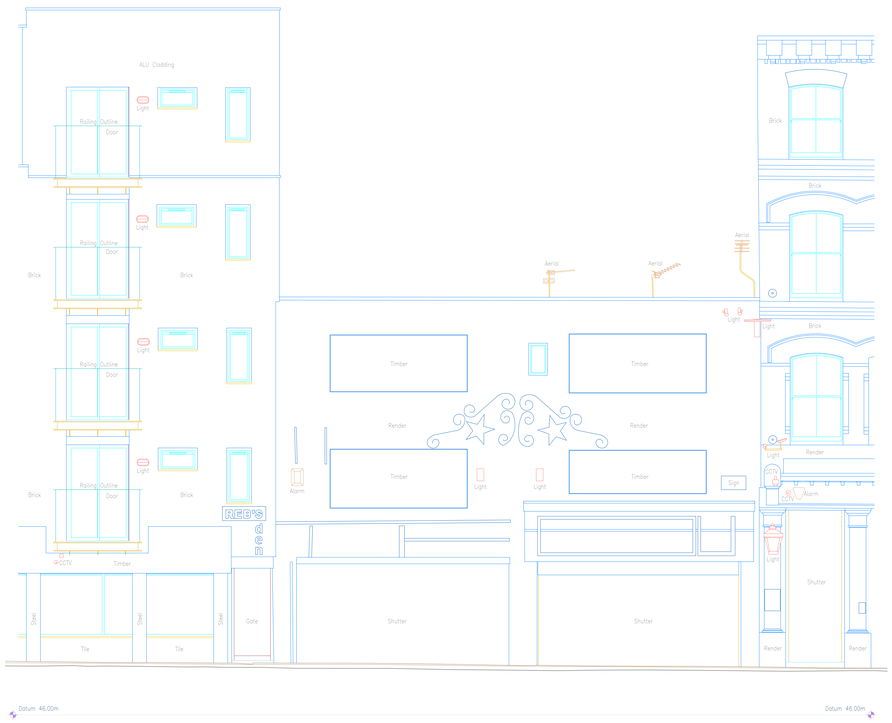
Client: Penny Chan

Drawing Title: Topographical Survey

Project: 78-80 Tib Street, Manchester, M4 1LG

Drawn by: A.L. | Checked: S.L. | Status: Final | Rev: N/A

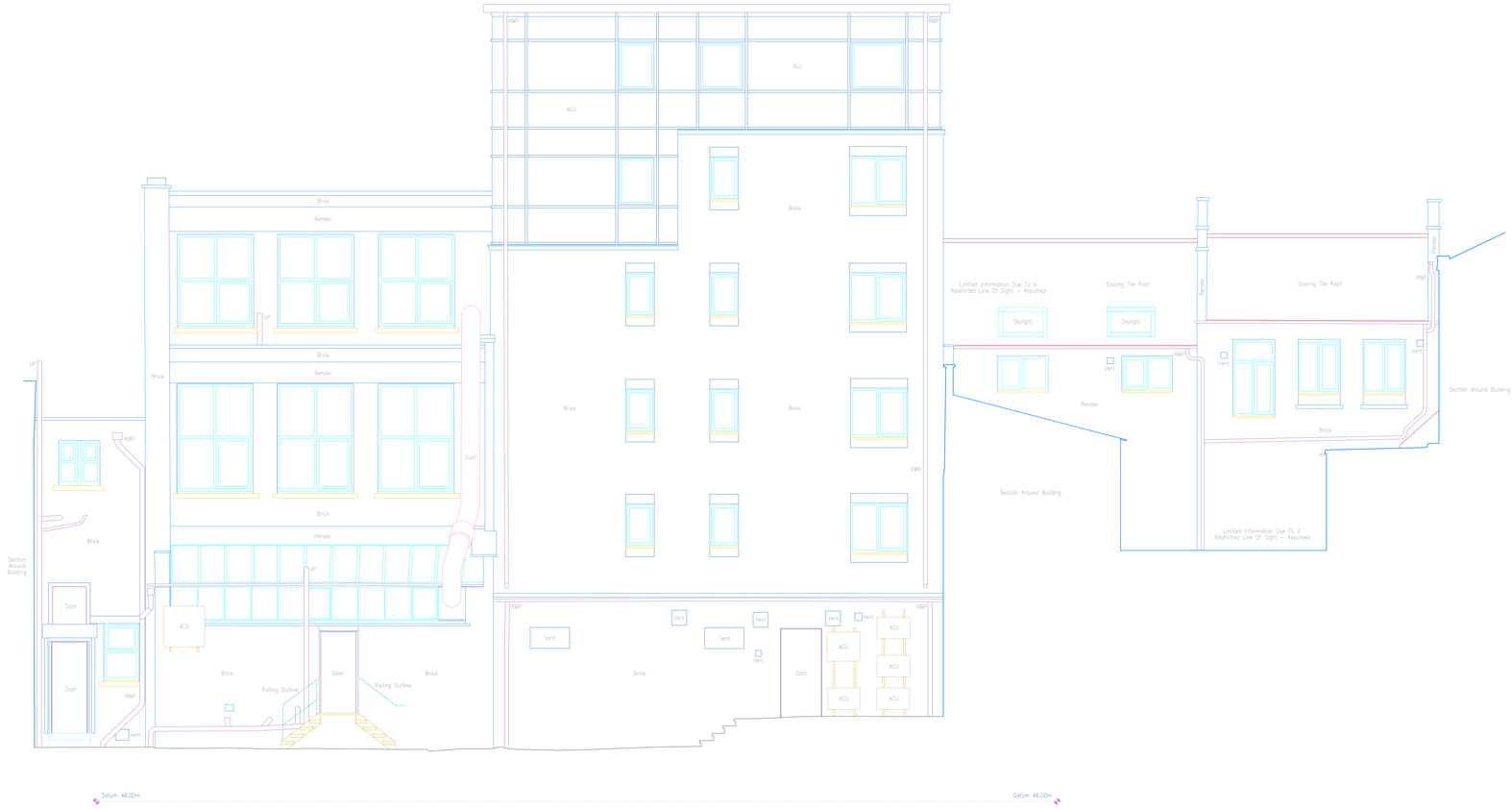
Date of Survey: 09/06/25 | SD Ref No: J25315_01 | Sheet: 01 of 01



Elevation 1



Elevation 2



Elevation 3

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Fences shown are not necessarily legal boundaries.

All data remains in the ownership of Spatial Dimensions Ltd and any discrepancies between the survey and any other information should be reported to Spatial Dimensions Ltd.

Levels

A	Alarm Box	L	Light
AB	Air Brick	RWP	Rain water Pipe
ACU	Air Conditioning Unit	STR	Sloping Tiled Roof
BK	Brick	TB	Telecoms Box
CO	Column	V	Vent
GM	Gas Meter	VP	Vent Pipe
HR	Handrail	WP	Waste Pipe
JB	Junction Box		

Grid & Datum

Survey Grid

The survey grid is a local, plane grid coincident with Ordnance Survey National Grid and orientated to grid north.

Survey Datum

The survey is based on Ordnance Survey datum (Newlyn).

Notes

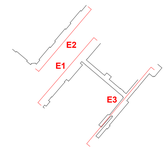
Building Level Information

Eaves level indicates lowest point of roof pitch.

Ridge Level



Key Plan



Revisions

Rev	Notes	Date	CAD
	Notes		

Scale Bar

0 1 2 3 4

Scale in Metres 1:50 @ A0

SPATIAL DIMENSIONS

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Client: Penny Chan

Drawing Title: Elevations

Project: 78-80 Tib Street, Manchester, M4 1LG

Drawn by: A.L. | Checked: S.L. | Status: Final | Rev:N/A

Date of Survey: 09/06/25 | SD Ref No:.J25315_02 | Sheet: 01 of 01

Appendix C – United Utilities Asset Plans

United Utilities
Water for the North West

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: arthian
Our Ref: UUPS-ORD-673727
Date: 26/08/2025

I acknowledge with thanks your request dated 26/08/2025 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

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

Water for the North West

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)".

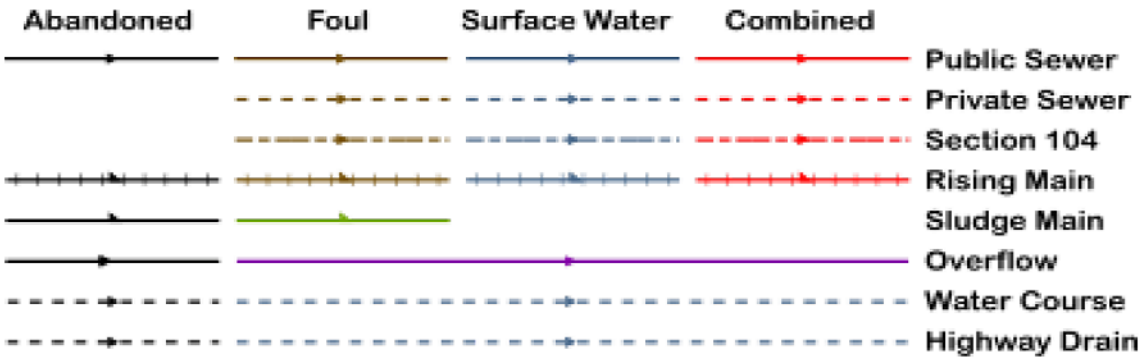
TERMS AND CONDITIONS:

- 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.

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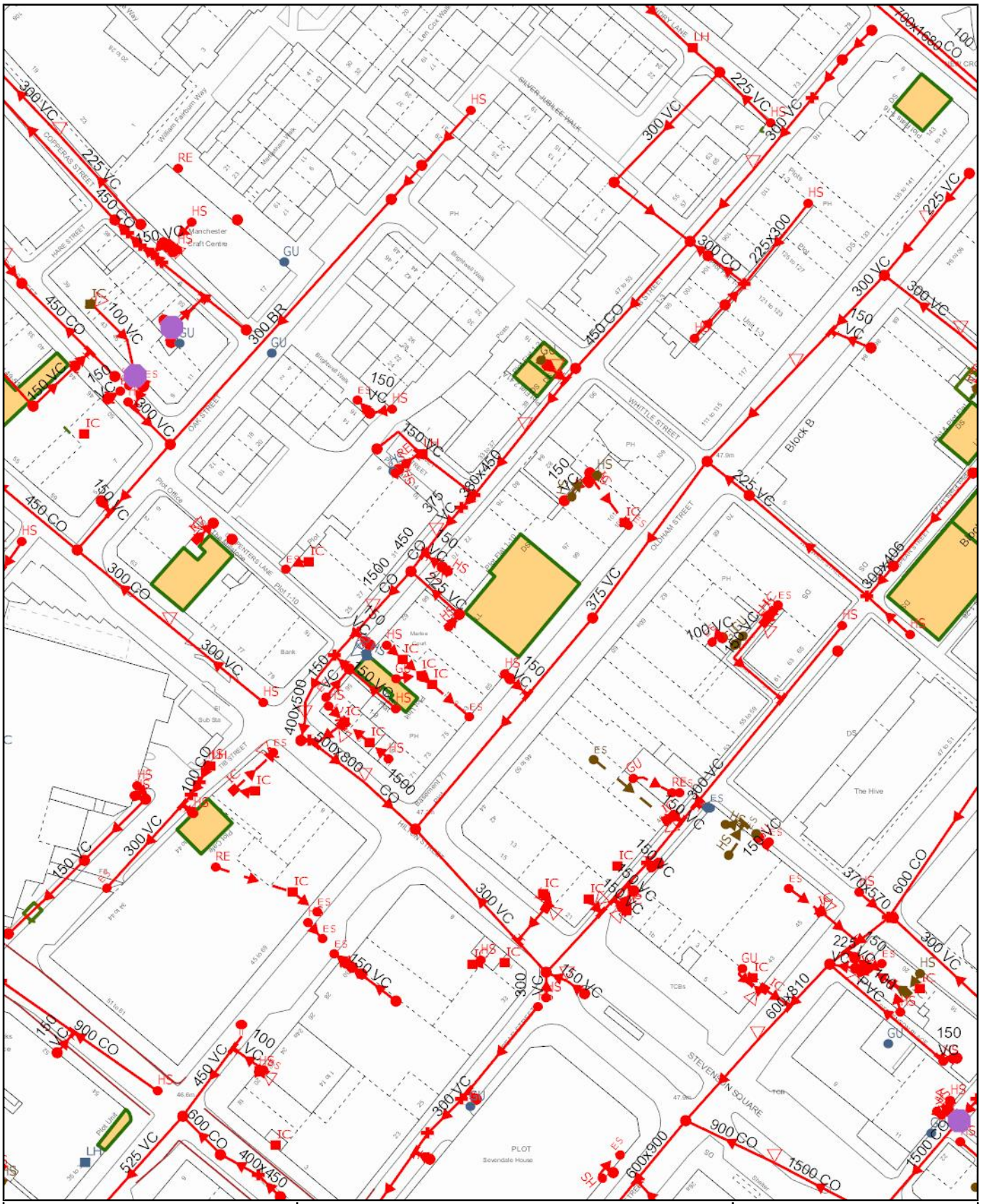
United Utilities
Water for the North West

Wastewater Symbology



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

- Manhole
- HS Head of System
- ES Extent of Survey
- RE Rodding Eye
- IN Inlet
- DP Discharge Point
- HY Vortex
- PE Penstock
- WO Washout Chamber
- VA Valve
- AV Air Valve
- NRV Non Return Valve
- SO Soakaway
- GU Gully
- CA Cascade
- FM Flow Meter
- HA Hatch Box
- OI Oil Interceptor
- SM Summit
- DS Drop Shaft
- OP Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- IC Inspection Chamber
- Bifurcation Chamber
- LH Lamp Hole
- T Junction / Saddle
- CA Catchpit
- VC Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- T Network Storage Tank
- V Sewer Overflow
- WwTW Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- CK Control Kiosk
- DNM Network Monitoring Point
- Change of Characteristic



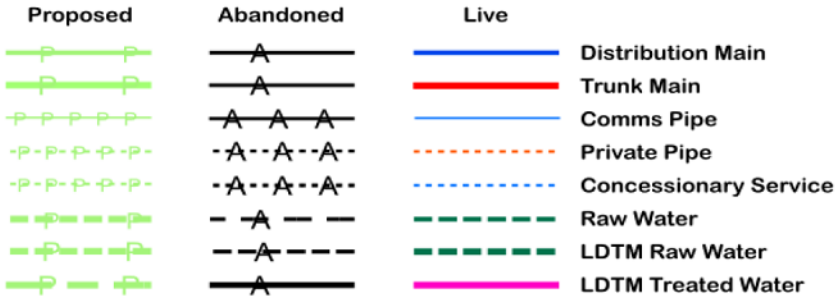
Scale:	1:1250	**SEWER RECORDS**	United Utilities Water for the North West
Date:	26/08/2025		
Address or Site Reference:	80 TIB STREET, MANCHESTER, M4 1LG		
Printed by:	Property Searches		

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

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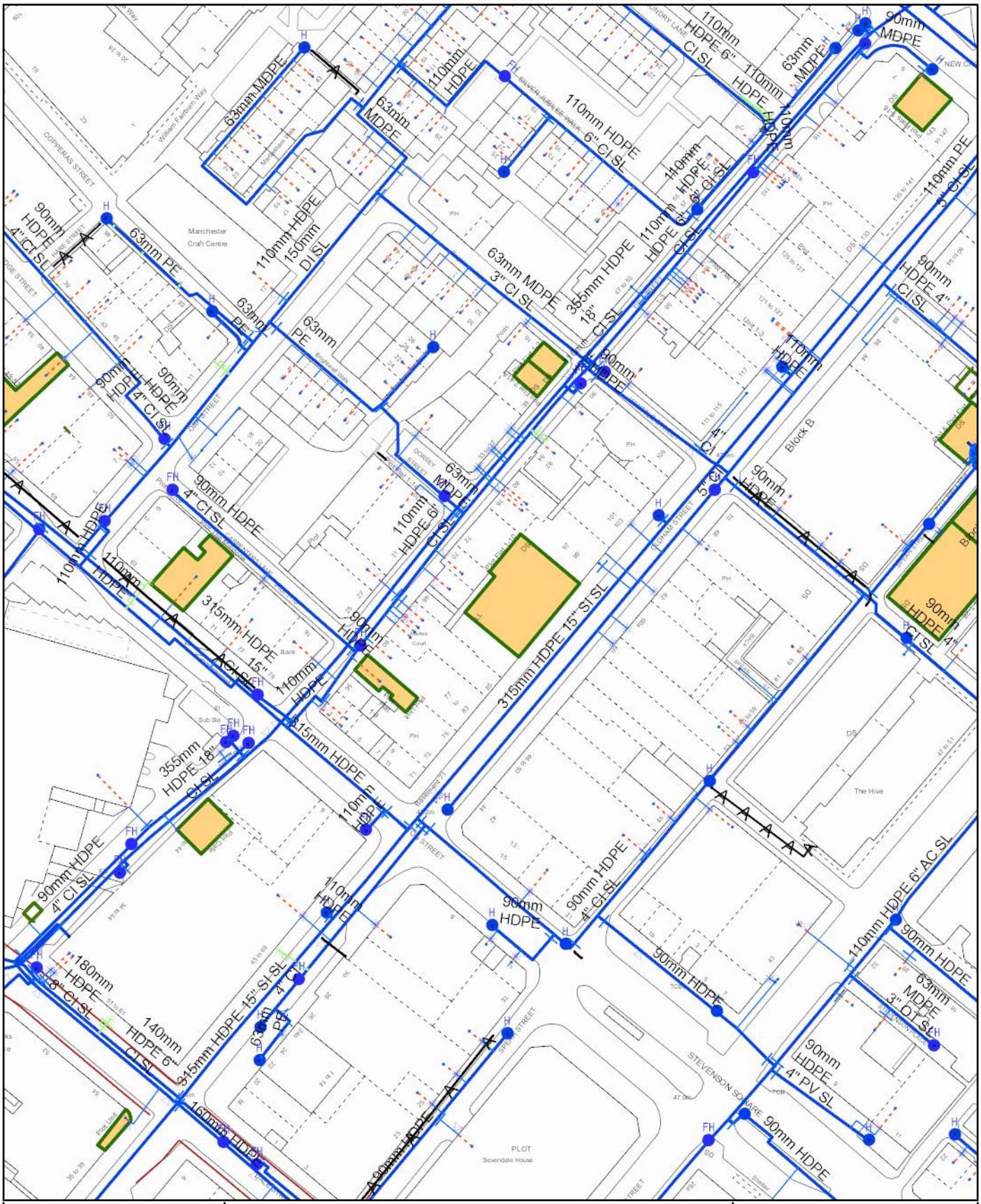
United Utilities
Water for the North West

Clean Water Symbology





Symbology for proposed assets is the same as above, but shown in green
Symbology for abandoned assets is the same as above, but shown in black



Scale:	1:1250	**WATER MAINS RECORDS**	United Utilities Water for the North West
Date:	26/08/2025		
Address or Site Reference:	80 TIB STREET, MANCHESTER, M4 1LG		
Printed by:	Property Searches		

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

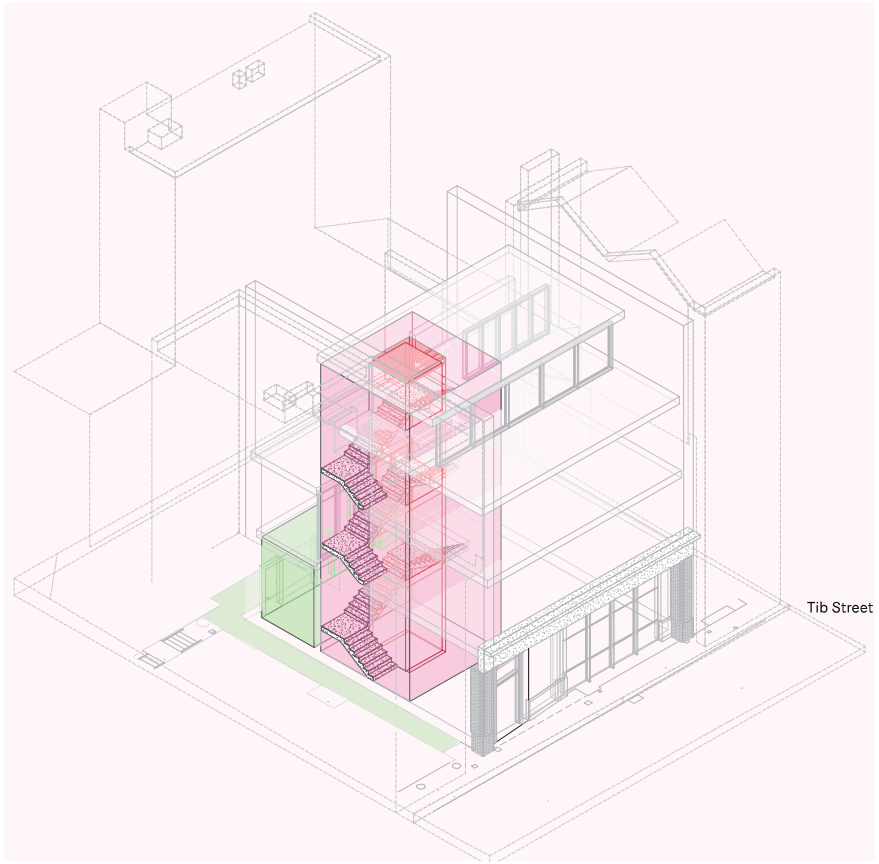
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Appendix D – Proposed Development Plans

L E P



02 Proposed Building



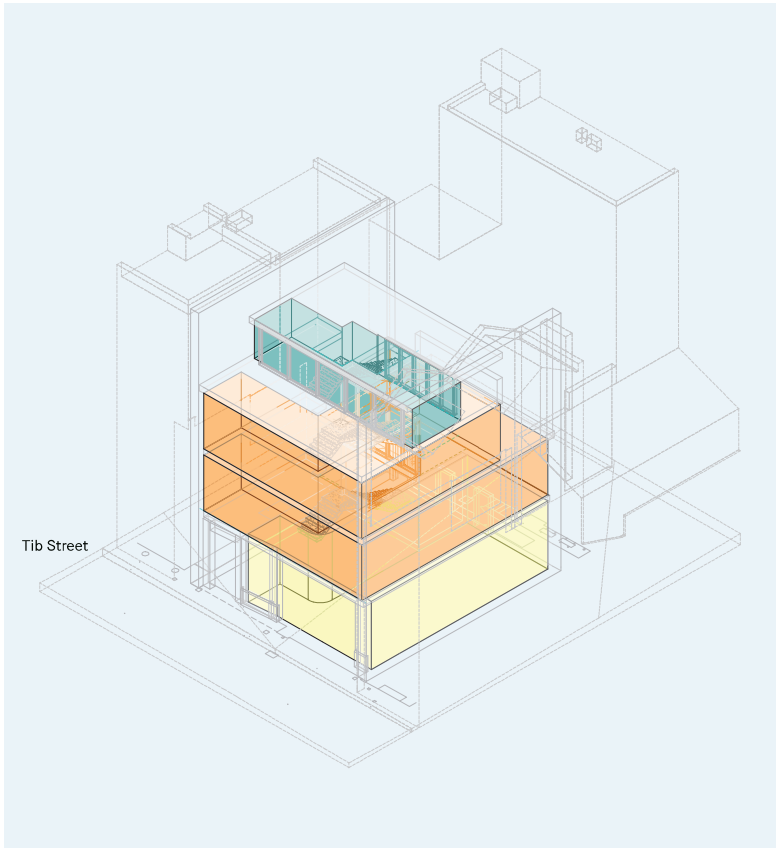
Building's core circulation and waste management

Key

- Wast Management facilities
- Primary Circulation core
- Secondary Circulation core



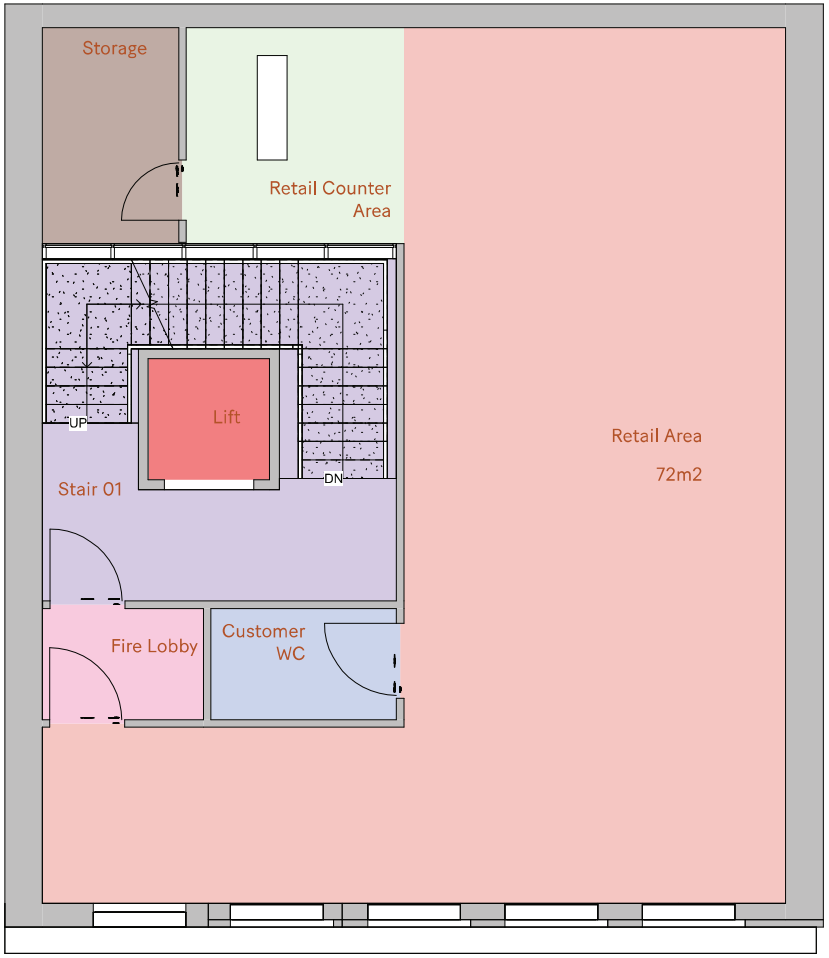
Ground Floor



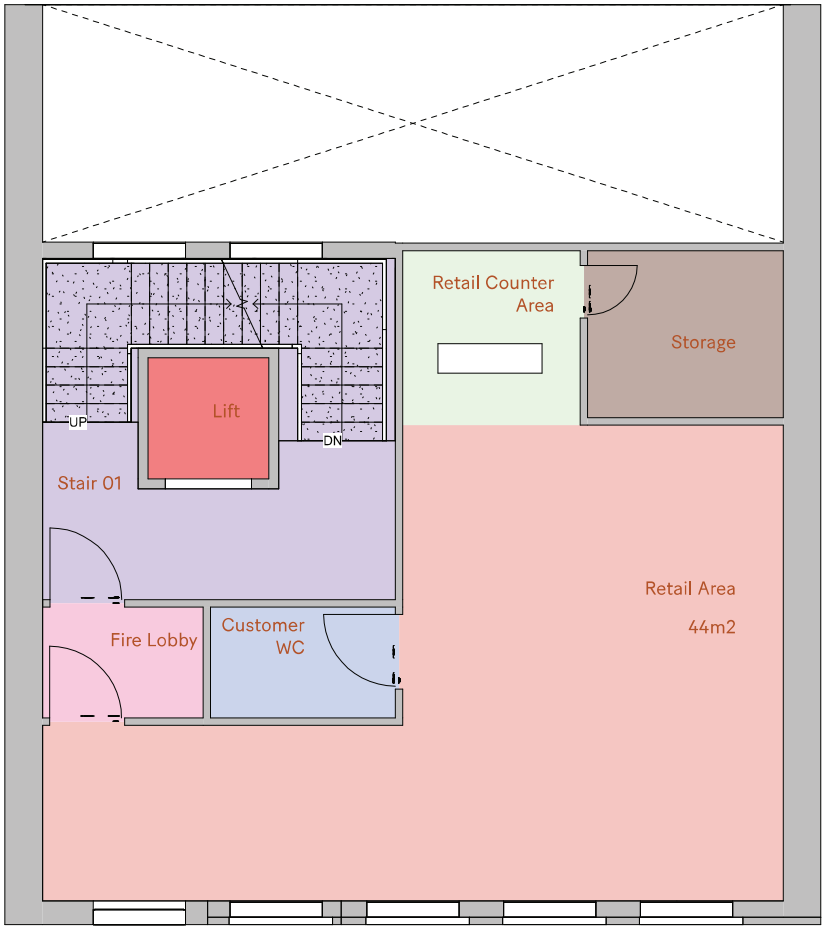
Building Use



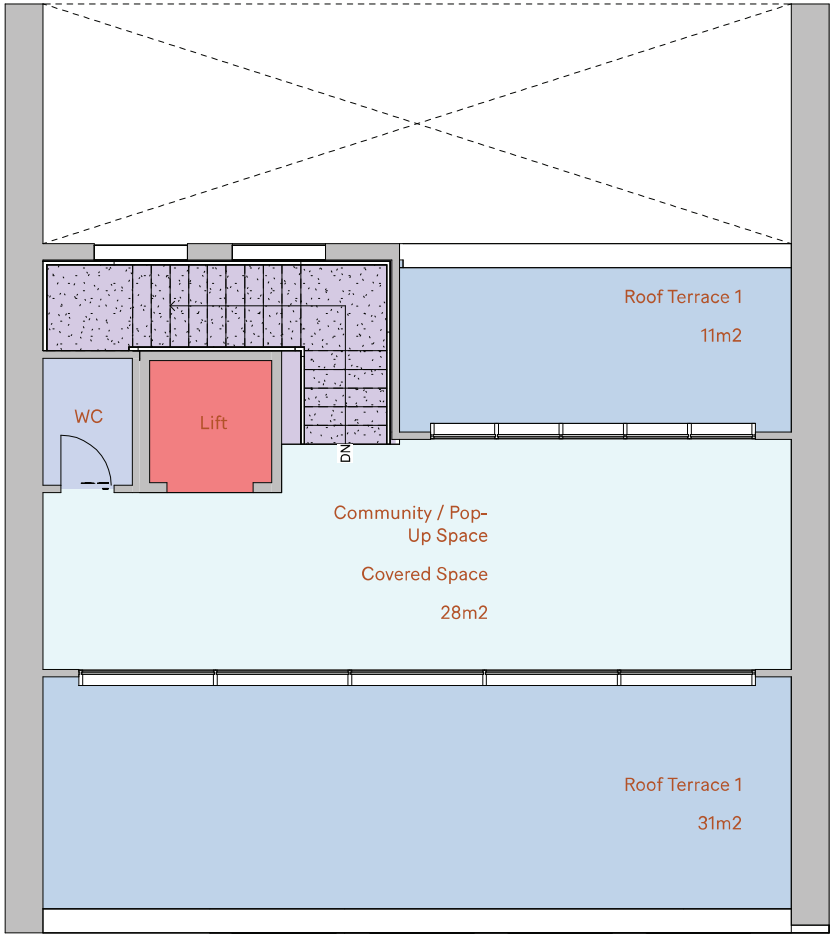
Ground Floor



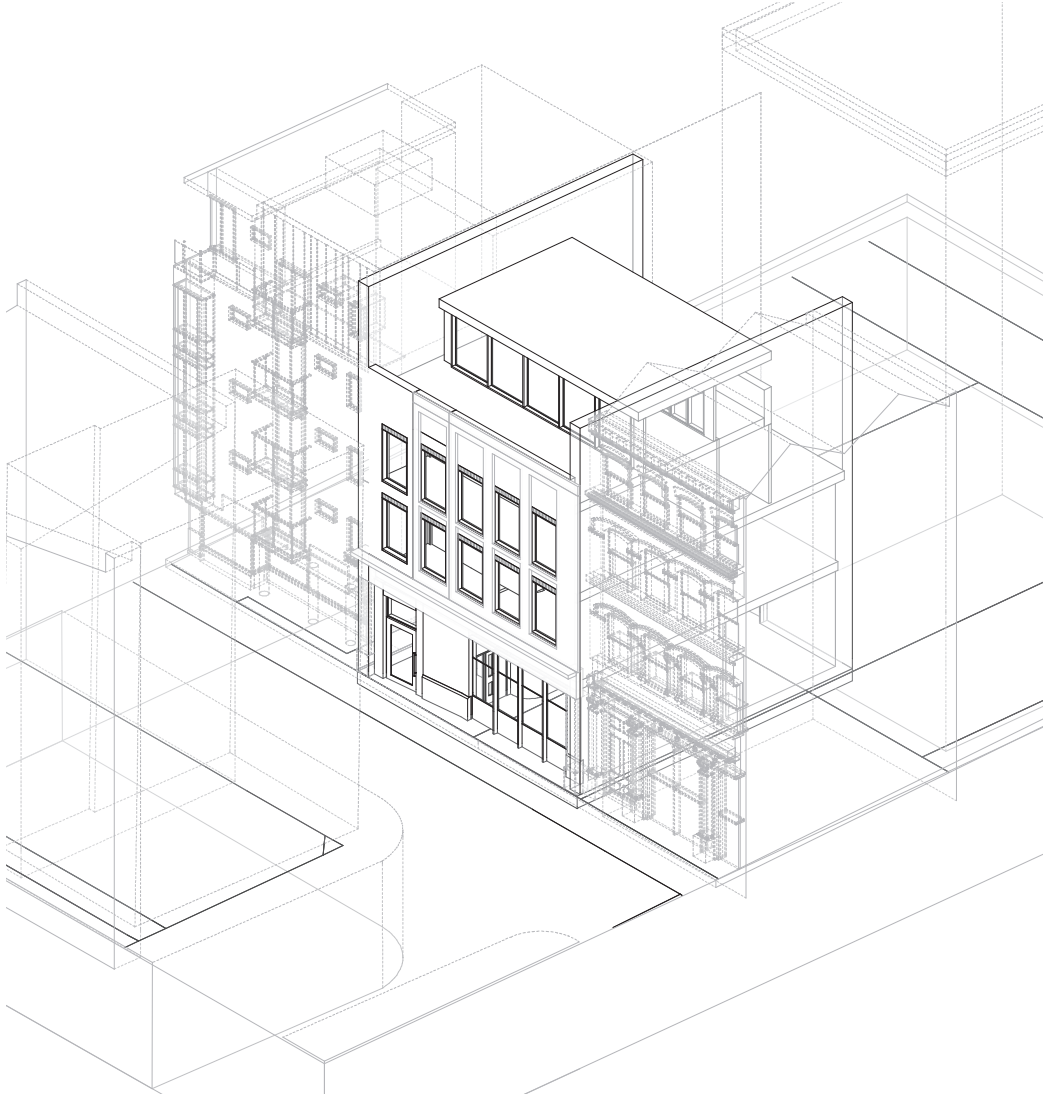
First Floor



Second Floor



Roof



Building Isometric



Option 1 Elevation



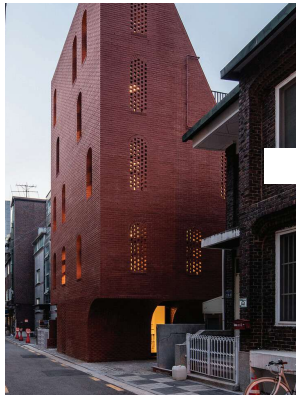
Option 1



Option 1 Elevation

1. Dark Red Brick
2. Red Pigmented Concrete or Red coloured Render Cladding
3. Bi-Folding Sliding Doors

Reference Images

1. 

2. 

3. 



Option 2 Elevation



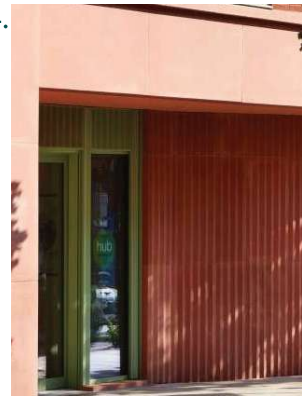
Option 2



Option 2 Elevation

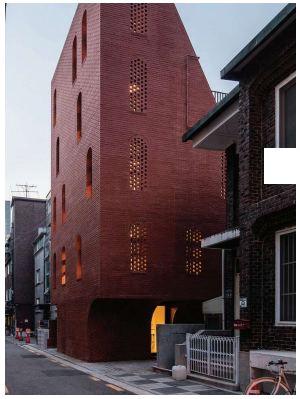
1. Dark Red Brick
2. Red Pigmented Concrete or Red coloured Render Cladding
3. Bi-Folding Sliding Doors
4. Dark Red Terracotta Cladding or Pigmented precast concrete panels

4.



Reference Images

1.



2.



3.



Option 2

Appendix E – Causeway Flow Calculations

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	1.200
Time of Entry (mins)		Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Storage	0.011	5.00	100.000	0.000	0.000	2.000

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	0.840	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
30	30	0	0
100	30	0	0

Node Storage Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	97.500	Product Number	CTL-SHE-0051-1200-1000-1200
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.2	Min Node Diameter (mm)	1200

Node Storage Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	98.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	0

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	4.2	0.0	1.000	4.2	0.0	1.001	0.0	0.0

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Results for 30 year +30% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	Storage	25	98.238	0.238	3.7	0.9766	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
30 minute winter	Storage	Hydro-Brake®	1.0	2.9

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Results for 100 year +30% CC Critical Storm Duration. Lowest mass balance: 100.00%

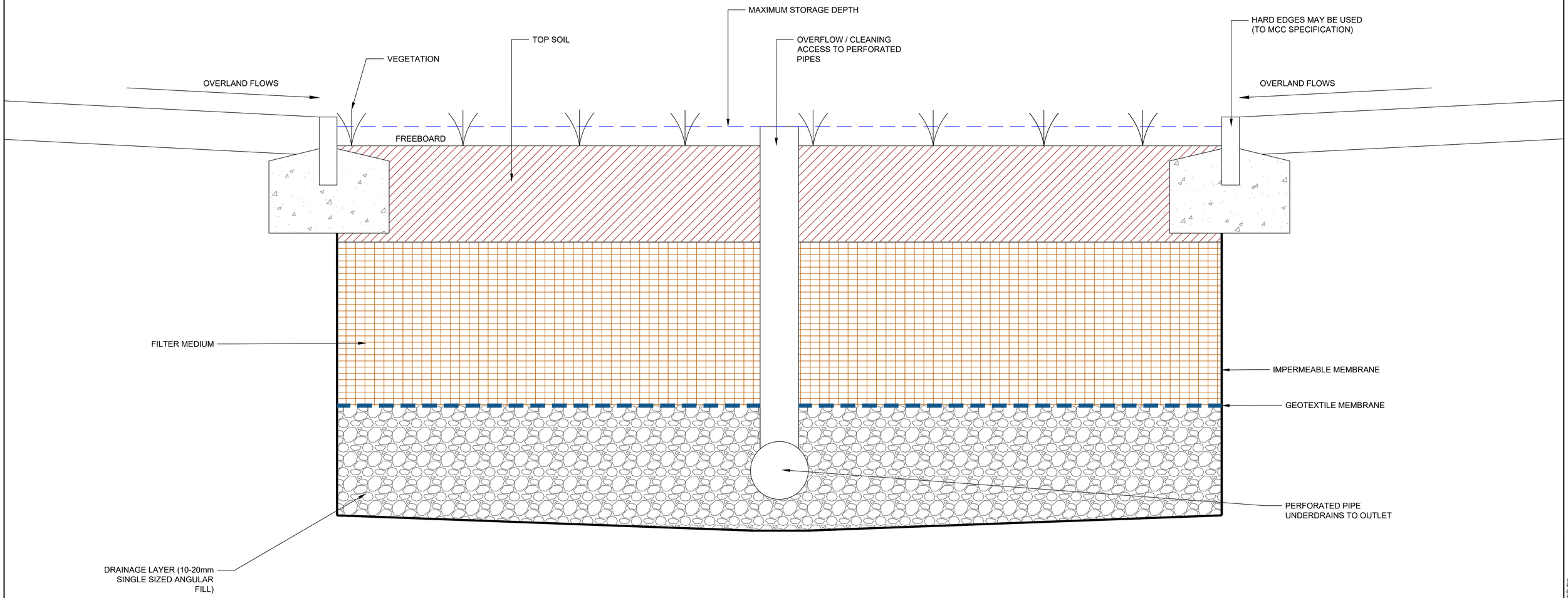
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	Storage	26	98.397	0.397	4.8	1.6284	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
30 minute winter	Storage	Hydro-Brake®	1.1	3.7

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Appendix F – Rain Garden Detail

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KEY:

- TOP SOIL
- FILTER MEDIUM
- DRAINAGE LAYER
- IMPERMEABLE MEMBRANE
- GEOTEXTILE MEMBRANE

REV	DESCRIPTION OF CHANGE	DATE

PROJECT TITLE: SUDS PROPOSAL

DRAWING TITLE: STANDARD RAIN GARDEN

SIZE	SCALE	DATE	DRAWN	CHECKED	APPROVED
A1	NTS	JAN 23	DW	OT	OT

DRAWING NUMBER:

REV:

MANCHESTER CITY COUNCIL

Highways
Neighbourhoods Directorate
PO Box 532
Town Hall
Manchester M60 2LA

CAD File : \\mcc.local\users$\S005\swoodd\Desktop\Sketches - Rain garden and Tree Pit Details.dwg

0 10 mm

Appendix G - Maintenance Schedules

Bioretention Systems Maintenance Schedule

Maintenance Schedule	Required Action	Typical Frequency
Regular inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underdrain (if appropriate) to determine if maintenance is necessary	Quarterly
	Check operation of underdrains by inspection of flows after rain	Annually
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly
Regular maintenance	Remove litter and surface debris and weeds	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays	Quarterly to biannually
Occasional maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
Remedial actions	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years

Table extract taken from the CIRIA C753 publication 'The SuDS Manual' – Table 18.3