Flood Risk Assessment

Manchester YMCA

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1.0. Executive Summary

Building Design Partnership (BDP) has been commissioned by Manchester YMCA to prepare a site-specific Flood Risk Assessment (FRA) in support of a planning application relating to flood mitigation and resilience measures at the existing YMCA building on Liverpool Road, Manchester, M3 4JR.

The site is located within Flood Zone 2, with the northern extent of the site located within Flood Zone 1, as defined by the Environment Agency Flood Map for Planning. The assessment has been undertaken in accordance with the National Planning Policy Framework (NPPF, February 2025), the associated Flood Risk and Coastal Change Planning Practice Guidance, and relevant local policy and guidance, including the Manchester City Council Strategic Flood Risk Assessment (SFRA).

The purpose of this report is to assess the risk of flooding to the existing building from all potential sources, including fluvial, pluvial (surface water), sewer, groundwater, and artificial sources such as canal and reservoir failure, and to identify appropriate mitigation measures in response to recent flood events, most notably the flooding that occurred in July 2019 and January 2025.

The assessment confirms that the principal source of flood risk to the site is fluvial flooding associated with high water levels within the Bridgewater Canal, influenced by the direct interaction with the River Medlock. Environment Agency Product 4 modelling data has been reviewed to understand flood extents, depths, and the influence of climate change. Other sources of flooding, including surface water, sewer, and groundwater flooding, are assessed to pose a low risk to the site.

A range of proportionate and site-specific mitigation measures are identified to reduce the risk of flood ingress and improve the building's resilience, including flood-resistant doors and windows, localised surface water interception, raised placement of flood-sensitive equipment, improved drainage maintenance regimes, and registration for the Environment Agency flood alert service. When considered alongside the existing site levels, the proposed flood-resistant external fixtures are expected to prevent ingress to the building, allowing flood water to safely accumulate within the car park area and Castlefield Bowl and subsequently drain away through the existing system following the storm event.

Taking account of the proposed mitigation measures, the assessment concludes that the development will not increase flood risk elsewhere and will significantly reduce the vulnerability of the existing building to flooding. The proposal is considered appropriate development within Flood Zone 2, consistent with the NPPF vulnerability classification for leisure uses, and is acceptable in flood risk terms.

2.0. Introduction

2.1. Appointment and Brief

Building Design Partnership (BDP) have been commissioned by Manchester YMCA to carry out a formal site-specific Flood Risk Assessment Report in support of a Planning Application, for the installation of flood resistant and resilient mitigation at the Manchester YMCA, Liverpool Rd, Manchester M3 4JR.

This Flood Risk Assessment has been prepared specifically to assess flood risk to the existing building and to identify appropriate mitigation measures following recent flood events.

As such, a formal drainage strategy is not required and is not included within the scope of this report. The focus of this assessment is flood risk from all sources, in accordance with the NPPF.

This Flood Risk Assessment has been prepared in accordance with the National Planning Policy Framework (NPPF) and the accompanying Technical Guidance to assess all forms of flooding.

2.2. Sources of information

This Report summaries data supplied or provided from the following external sources listed below.

Table 1: Existing available information

Source of Information	***Author***	***Date***
CCTV Survey	Bentley Drains	2026
Product 4 flood modelling data	Environment Agency	March 2026
LiDAR Survey	DEFRA	March 2026

2.3. Limitations

This report has been prepared for exclusive use by our client YMCA, for the purpose of assisting them in evaluating the potential risk of flooding associated with the site in making a Planning Application.

Building Design Partnership (BDP) accepts no liability for any use of this document other than by its client and only for the purposes, stated in the document, for which it was prepared and provided. No person other than the client may copy (in whole or in part) use or rely on the contents of this document, without the prior written permission of BDP. Any advice, opinions or recommendations within this document should be read and relied upon only in the context of the document as a whole.

BDP has endeavoured to assess all information provided to them during this appraisal. The report summarises from a number of external sources and cannot offer any guarantees or warranties for the completeness or accuracy of information relied upon.

This report has been undertaken with the assumption that the site will be developed in accordance with the above proposals without significant change. The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the site.

3.0. Site Context

3.1. Site Location

The site is located off Liverpool Rd, Manchester M3 4JR E 383049 N 397769. A Site location plan is included in Appendix A.



Figure 1: Aerial image of the site (Google.co.uk/maps)

3.2. Site Characterisation/ Land-Use

Key features of the existing site have been summarised below.

Table 2: Summary of site characteristics

Site Area		1100m2
Site Description and Current Use		There is a gym located within the site boundary adjacent to a car park and a hotel and a swimming pool.
Boundaries	North	Castlefield Hotel and Liverpool Road
	East	Castlefield Bowl
	South	Car park
	West	Potato Wharf
Access	Vehicular	Vehicular access can be gained by the car park from the west off Potato Wharf
	Pedestrian	Pedestrians can access the site off Liverpool Road and through the car park off Potato Wharf.

3.3. Topography

A full site-wide topographical survey was not available at the time of writing this report. Spot levels were included within the drainage survey undertaken by Bentley Drains in March 2026, however these were limited. To assess the existing ground levels, LiDAR data was obtained from the Environment Agency's dataset and compared against the limited survey information. A comparison of the two surveys showed that the levels were generally aligned within 20mm, therefore LiDAR has been used to determine the existing ground levels at the site.

Based on the LiDAR data the site generally falls from Potato Wharf and the southern boundary of the car park towards the Y Club, which has a finished floor level of approx. 25.75m AOD. The east of the site is relatively flat with steps leading up to Liverpool Road and the hotel section of the YMCA building, which is set at an approx. level of 29.70mAOD.

3.4. Geology

The underlying strata is a naturally wet sandy and loamy soil with poor infiltration leading to shallow groundwater.

3.5. Hydrogeology

A review of DEFRA's Aquifer designation Map indicates that the site is underlain by a Secondary A Aquifer.

In addition, the ground water vulnerability map also shows that the site is located in an area with a medium - high vulnerability to a pollutant discharged at ground level. However, the site is not located within a groundwater Source Protection Zone (SPZ).

3.6. Existing Public Sewers

United Utilities (UU) are the local Water Authority serving the area where the proposed development is located. Based on available sewer records, which can be found in Appendix C, there is an overflow pipe which runs across

the site and flows into the Bridgewater canal from the public network. There is also a combined sewer which originates to the east of the Y Club and connects in another combined sewer on Liverpool Street.

3.7. Existing Private Drainage

A CCTV survey was undertaken by Bentley Drains in December 2025 and March 2026 to confirm the location and condition of the existing private network. The survey confirmed that the site is positively drained and connects into the public combined sewer outside the Y Club. The pipes were generally shown to be in good condition with minor remedial works recommended. A copy of the CCTV Survey is included in Appendix B.

3.8. Watercourses, Land Drainage and other Waterbodies

A mooring area of the Bridgewater Canal is located directly east of the YMCA., with the main canal channel located approximately 90m south of the site. The River Irwell and River Medlock are also shown to be within close proximity to the site with the Irwell located approximately 240m west and the Medlock 245m south east, discharging directly into Bridgewater canal.

4.0. Policy and Guidance

This report takes into account the provisions of the development plan and a range of other material considerations. However, it is the Government's National Planning Policy Framework (NPPF), Local Council's Policies and CIRIA document C624, which provide the most up to date and specific guidance on the Scope of Flood Risk Assessments.

4.1. National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF) was first published in England in March 2012 and a revised version was published in February 2025. As a result, all previous Planning Policy Guidance Notes (PPGs) and Planning Policy Statements (PPSs) were superseded. This included PPS25: Development and Flood Risk, along with its supplement on Development and Coastal Change.

One of the main aims of the NPPF is to ensure that flood risk is taken into account at all stages of the planning process to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk. It advises that where new development is necessary in areas of higher risk, this should be safe, without increasing flood risk elsewhere, and where possible should reduce flood risk overall.

Annex 3 from the 'Flood Risk and Coastal Change Guidance' (2014) defines the type and nature of different development classifications in the context of their flood risk vulnerability. This should be compared against 'Table 2: Flood Risk Vulnerability and Flood Zone `compatibility' to determine the risk of flooding to a proposed development.

4.2. Local Plan/Core Strategy

Manchester City Core Strategy was adopted in July 2012 and sets out the spatial planning strategy for the city until 2027. The strategy refers to Manchester being a sustainable city with Policy DM 1 being more specific that all new developments should have regard for flood risk. Policy EN 8 states developments should be adaptable to climate change and minimise flood risk where possible.

4.3. Strategic Flood Risk Assessment (SFRA)

Manchester City Council Strategic Flood Risk Assessment (SFRA) was produced by JBA Consulting March 2010. The report assists Manchester City Council in meeting their duties as a Lead Local Flood Authority (LLFA) in managing local flood risk and delivering the requirements of the Flood Risk Regulations (2010).

SFRA's assess the risk associated with all types of flooding and provide the information required to identify the amount of development permitted in an area; how the drainage systems in the area should function and also how the risks in vulnerable areas can be reduced and/or mitigated.

The site is located within a critical drainage area, and the River Irwell which is downstream of the Bridgewater canal historically floods. The Bridgewater canal is a broad canal therefore is a controlled water body with a lower probability of overtopping. The SFRA says the following relating to the Bridgewater canal which is adjacent to the site.

"In locations where surrounding ground levels are the same as or lower than canal level water levels, flooding from canal overtopping was considered to be possible."

"The risk of flooding from the Bridgewater Canal is higher than that from the Ashton and Rochdale Canals, since it receives natural inflows from the River Medlock."

"Areas in the vicinity of the canal that are more than approximately 0.3m lower than the estimated canal water level were assumed to be at potential risk from a canal breach."

"The SFRA also lists the main flood risks on the Bridgewater canal:

- *A potentially high inflow to the Bridgewater Canal at Worsley from overtopping of Old Warke Dam and M60 surface water discharges during flood conditions.*
- *A potentially high inflow to the Bridgewater Canal from the Rochdale Canal during flood conditions,*
- *A potentially high inflow to the Bridgewater Canal from the MSC around Pomona Island during flood conditions,*
- *A potentially high inflow to the Bridgewater Canal from the River Medlock or Corn Brook during flood conditions,*
- *A potentially high inflow in the Bridgewater Canal towards Manchester caused by a net inflow over the 60km pound to the west of Manchester in peak flood conditions,*
- *Westerly winds during flood conditions which would increase the canal water levels at Manchester (similar to the 1987 event),*
- *A total combined inflow which exceeds the canal capacity leading to a breach of a raised section into development areas with lower land levels (similar to the Dunham Massey failure, 1971)"*

4.4. Local Flood Risk Management Strategy (LFRMS) / Surface Water Management Plan.

Manchester City Council, as the LLFA has produced a Local Flood Risk Management Strategy (LFRMS) under the Flood and Water Management Act 2010. The strategy addresses flood risk from surface water, groundwater, and ordinary watercourses, promoting a coordinated and sustainable management approach.

A key objective from Manchester City Council is to *"reduce the likelihood, severity and consequences of flooding from Ordinary Watercourses, from groundwater and from Surface Water runoff".* This is to be achieved by engaging in the planning process to ensure flood risk is appropriately mitigated.

5.0. Sources of Flood Risk

5.1. Fluvial Flood Risk

The Environment Agency (EA) Flood Zone Map indicates that the existing building lies predominately within Flood Zone 2 (medium risk) with the north of the site in Flood Zone 1 (low risk).

These Flood Zones are defined as follows:

- Flood Zone 1: Land assessed as having less than 1 in 1000 annual probability of flooding from rivers (<0.1%).
- Flood Zone 2: Land assessed as having between a 1 in 100 and 1 in 1000 annual probability of flooding from rivers (1%-0.1%).
- Flood Zone 3: Land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%)



Figure 2: Environment Agency Flood Map for Planning - Flooding from Rivers and Sea (Gov.uk)

The site has a history of flooding with the most notable events occurring in July 2019 and January 2025. Anecdotal evidence indicated that flood waters entered the gym through the existing doors and windows on the eastern elevation of the YMCA Manchester building and settled within the basement areas.

The Manchester City Council SFRA also indicates the Bridgewater canal has flooded on multiple occasions in 1872, 1971, 2000, 2001 and 2025. The cause of the flood event in 2001 was similar to the recent occurrence in 2025 as it was the result of overtopping of the canal within Castlefield Bowl.

The EA historical flood data shows the Bridgewater canal has flooded on multiple occasions including 1866, 2000, 2002, 2008, 2015 and 2025 although only the event in 2025 was identified to directly affect the YMCA site.

Start date	End date	Source of flood	Cause of flood	Affects location
1 January 2025	1 January 2025	unknown	unknown	Yes
26 December 2015	26 December 2015	main river	overtopping of defences	No
21 January 2008	22 January 2008	main river	unknown	No
30 July 2002	31 July 2002	ordinary watercourse	unknown	No
1 June 2000	2 June 2000	unknown	channel capacity exceeded (no raised defences)	No
01 November 1866	02 November 1866	main river	channel capacity exceeded (no raised defences)	No

Figure 3 - Historical flood events from EA product 4 data

Product 4 data has been obtained from the EA to assess the existing and predicted extent of flooding at the site. The data provides modelled water levels across the site for the 1 in 1000 year (0.1% AEP) as shown in Figure 4.

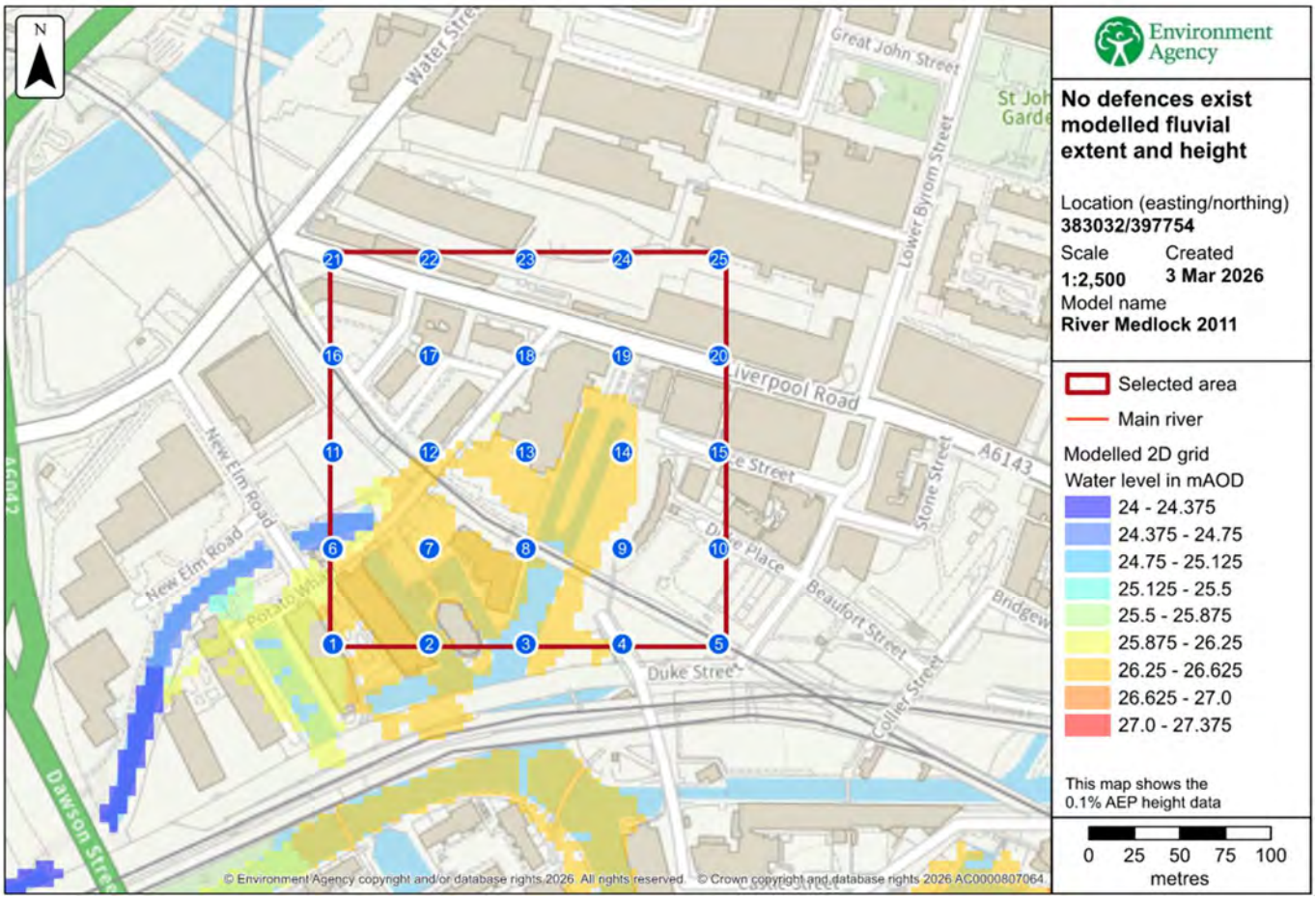


Figure 4 - Existing modelled fluvial extent and height map from EA Product 4 data

Unfortunately, the modelled flood level dataset is limited as the majority of the nodes are located just outside the flood zone extents shown in Figure 4, therefore the associated table shown in Figure 5 shows most of the points to have 'no data'. Ideally node 13 would be used as this is the within the site boundary, however since there is no data available, the next nearest node with data is node 14 located approximately 30m to the east of the site. Since

this node falls within the same water level data range in Figure 4 and has similar external ground levels to the site in accordance with LiDAR data, it is a reasonable dataset for reviewing potential flood levels at the site.

Label	Easting	Northing	4% AEP	1% AEP	0.1% AEP	4% AEP	1% AEP	0.1% AEP
			Height	Height	Height	Depth	Depth	Depth
13	383030	397753	NoData	NoData	NoData	NoData	NoData	NoData
14	383083	397753	NoData	NoData	26.34	NoData	NoData	0.44
15	383136	397753	NoData	NoData	NoData	NoData	NoData	NoData
16	382924	397806	NoData	NoData	NoData	NoData	NoData	NoData
17	382977	397806	NoData	NoData	NoData	NoData	NoData	NoData
18	383030	397806	NoData	NoData	NoData	NoData	NoData	NoData
19	383083	397806	NoData	NoData	NoData	NoData	NoData	NoData
20	383136	397806	NoData	NoData	NoData	NoData	NoData	NoData
21	382924	397859	NoData	NoData	NoData	NoData	NoData	NoData
22	382977	397859	NoData	NoData	NoData	NoData	NoData	NoData
23	383030	397859	NoData	NoData	NoData	NoData	NoData	NoData
24	383083	397859	NoData	NoData	NoData	NoData	NoData	NoData

Figure 5 – Extract of Modelled Node Locations Data obtained from Environment Agency's Product 4 Data

The LiDAR data indicates an external ground level of approximately 25.75mAOD at the threshold of the YMCA building along the eastern façade, which is supported by the finished floor levels shown on historical elevation drawings for the building. Comparing this level to the modelled water level data of 26.34mAOD for the 0.1%AEP (1 in 1000 year event) indicates that the YMCA building could be inundated up to a depth of 590mm during this event.

Based on a review of the site wide external ground levels (figure 6) it is anticipated that flood waters from the docking area of the canal will overtop the adjacent paved area to the east of the YMCA and follow the natural topography flowing overland down to the car park to the low point along the southern facade of the building. From here, flood waters will pond until it reaches the modelled flood level of 26.34mAOD where it will then exceed the existing ground levels across the site entrance and overflow onto Potato Wharf and flow south towards another leg of the canal approximately 48m south west of the site. An existing ramped access to the service yard has a peak high point ranging from 26.5mAOD adjacent to the security booth down to 26.18mAOD adjacent to the building. As such, flood waters could also have the potential to overtop this ramp by up to 160mm and enter the service yard.

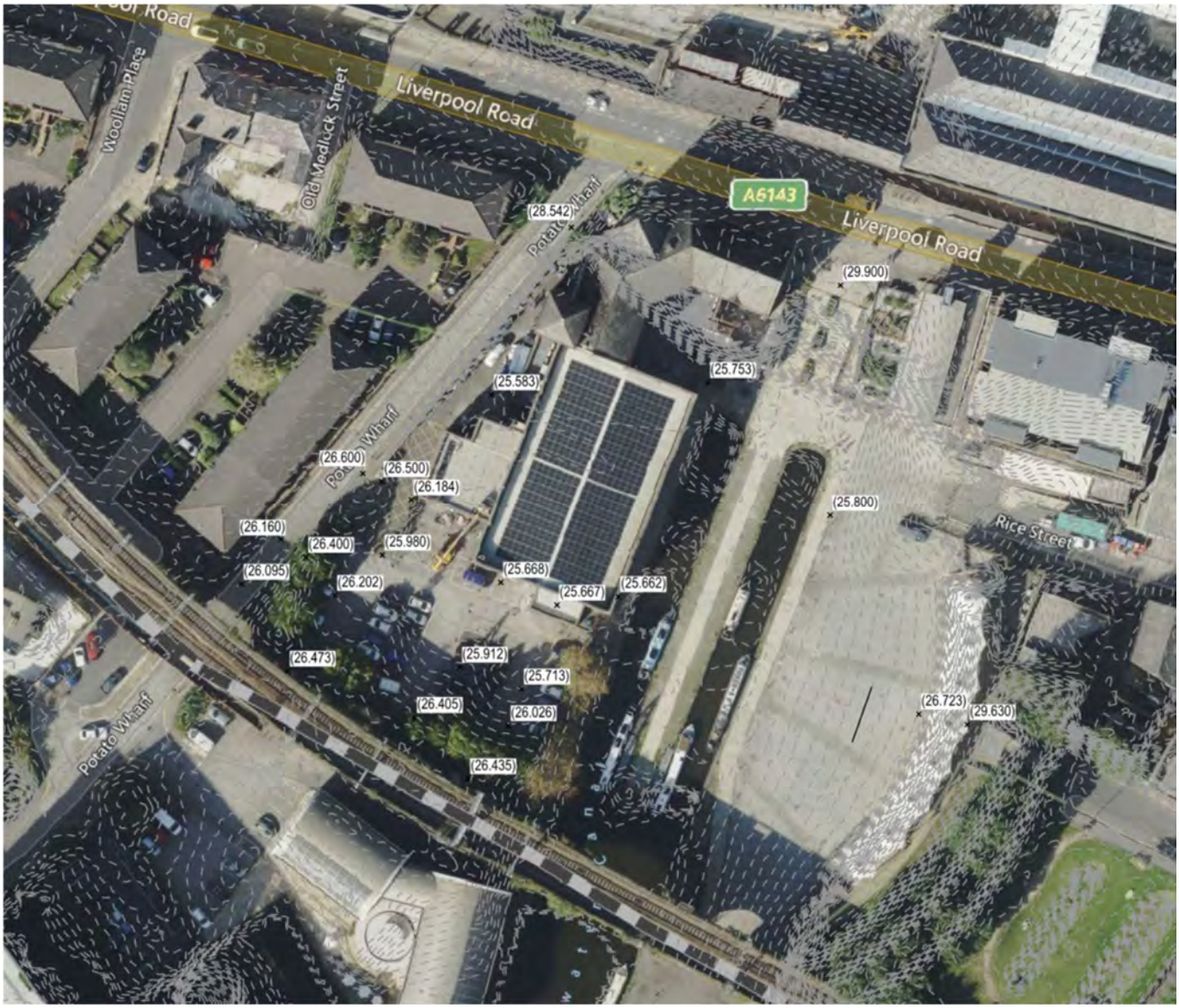


Figure 6 – LiDAR contour overlay onto Bing Aerial Map with spot levels

5.1.1. Climate Change

As part of a flood risk assessment, the Environment Agency specify climate change allowances to be applied to peak river flows based on the lifetime of a development, its vulnerability and the river catchment that the site is located within. Since the site is located within the Irwell catchment, is classified as 'less vulnerable' development and is expected to have a lifetime of 60 years, the Environment Agency require the central allowance for the 2080s epoch to be assessed, equating to a 35% increase to peak river flows (refer to table 3).

	Central	***Higher***	***Upper***
2020s	12%	15%	24%
2050s	19%	26%	43%
2080s	35%	46%	75%

Table 3 - Irwell management catchment peak river flow allowances

Unfortunately, the Product 4 data obtained from the Environment Agency does not have any data relating to the 35% climate change allowance, therefore the 70% allowance has been used for this assessment.

Similar to the assessment of the 1000 year event, the Product 4 data is limited with many of the nodes being located slightly beyond the modelled data. As such, node 14 has been referenced again as this is the closest point to the YMCA building.

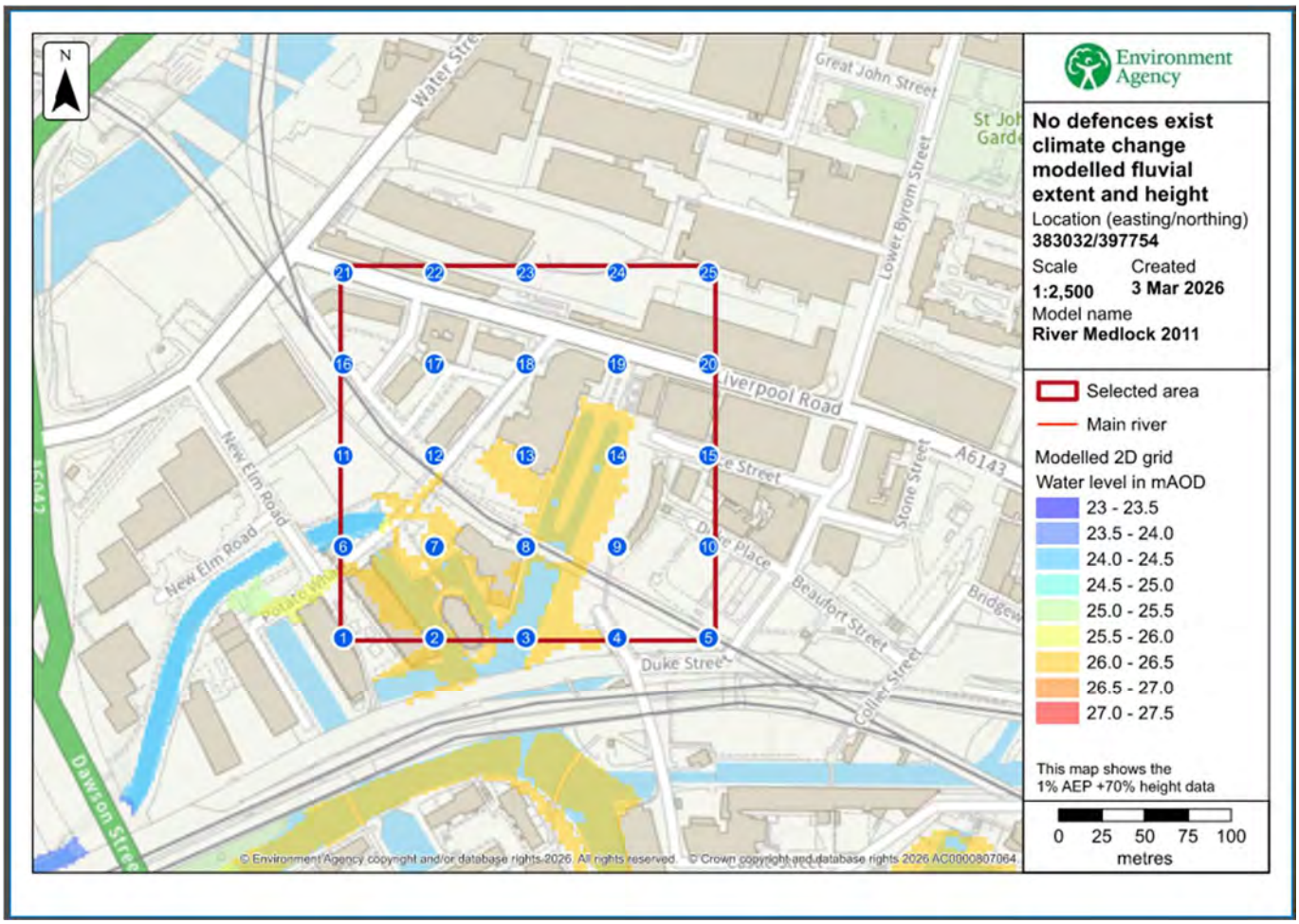


Figure 7 - Climate change modelled fluvial flood extent from Product 4 data

Figure 8 overleaf shows a modelled flood level of 26.15mAOD for node 14 for the 1% AEP (+70%) event. Although this event still impacts the site up to a depth of 400mm, the level of flooding is lower than the predicted 1 in 1000 year event stated previously in this report. Based on a review of the existing ground levels, flood waters for the 1% AEP (+70%) event could be wholly contained within the car parking area and would not overtop the ramped service yard area or the site access onto Potato Wharf.

Label	Easting	Northing	1% AEP (+20%) Height	1% AEP (+35%) Height	1% AEP (+70%) Height	1% AEP (+20%) Depth	1% AEP (+35%) Depth	1% AEP (+70%) Depth
13	383030	397753	NoData	NoData	NoData	NoData	NoData	NoData
14	383083	397753	NoData	NoData	26.15	NoData	NoData	0.33
15	383136	397753	NoData	NoData	NoData	NoData	NoData	NoData
16	382924	397806	NoData	NoData	NoData	NoData	NoData	NoData
17	382977	397806	NoData	NoData	NoData	NoData	NoData	NoData
18	383030	397806	NoData	NoData	NoData	NoData	NoData	NoData
19	383083	397806	NoData	NoData	NoData	NoData	NoData	NoData
20	383136	397806	NoData	NoData	NoData	NoData	NoData	NoData
21	382924	397859	NoData	NoData	NoData	NoData	NoData	NoData
22	382977	397859	NoData	NoData	NoData	NoData	NoData	NoData
23	383030	397859	NoData	NoData	NoData	NoData	NoData	NoData
24	383083	397859	NoData	NoData	NoData	NoData	NoData	NoData

Figure 8 - Modelled point data from Product 4 data

5.2. Pluvial Flood Risk

Pluvial flooding is defined as flooding resulting from rainfall-generated overland flow before runoff enters any watercourse or sewer. It is usually associated with high intensity rainfall events but can also occur with low intensity rainfall or melting snow where ground is saturated, frozen, developed or otherwise has low permeability resulting in overland flow and ponding in depressions in the topography. Large catchment areas are particularly prone to this type of flooding.

The Environment Agency's surface water flood map shows the site to be predominantly at low risk of surface water flooding with the exception of a small area in the service yard in the northwest of the site (figure 9). The flooding is confined to the back of house area for the Castlefield Hotel and is a result of a topographical low point. A review of existing drainage plans shows this area to be positively drained via several gullies, which will direct surface water into the private drainage network. Therefore, the risk of surface water runoff to the development is low.

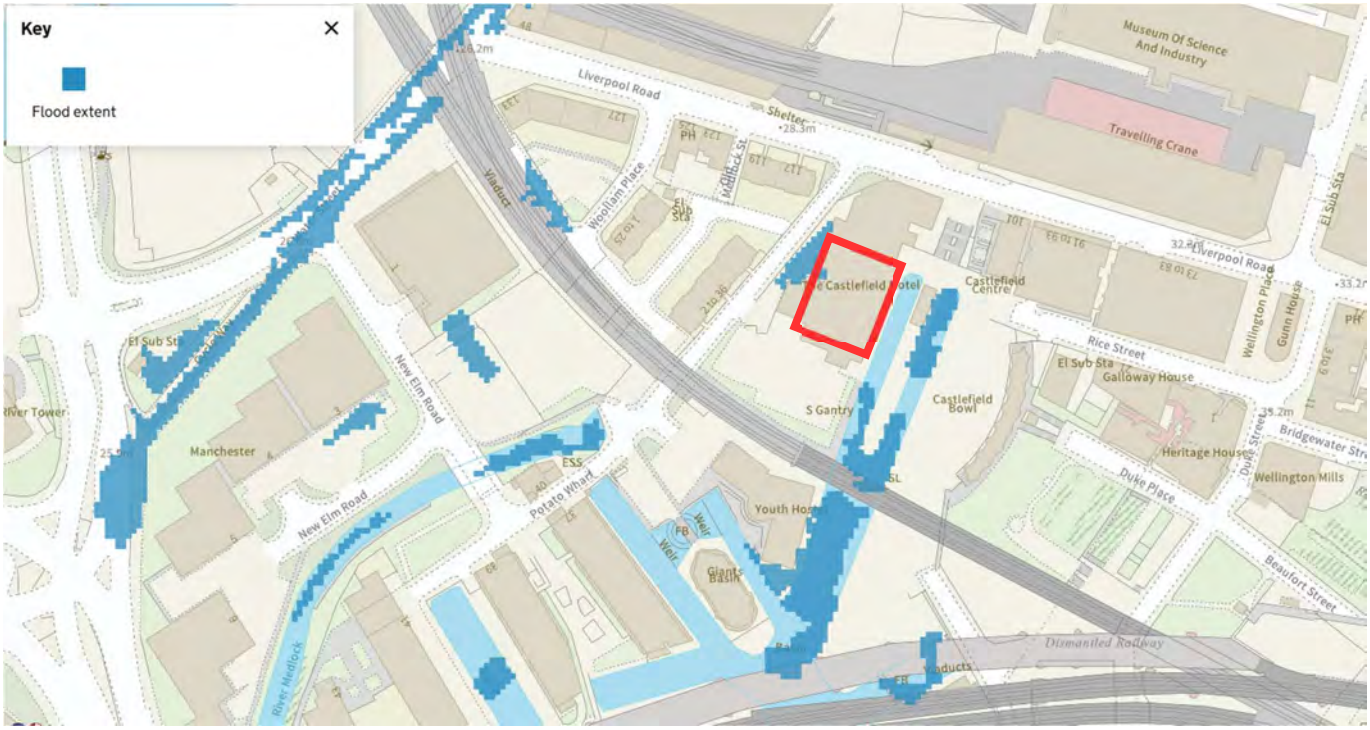


Figure 9 - Pluvial flood risk map from EA flood map for planning

5.3. Sewer Flood Risk

Sewer flooding occurs when the capacity of the local drainage system is exceeded either as a result of intense rainfall, blockages or high-water levels in watercourses preventing sewers from discharging properly.

Within the product 4 EA data and the Manchester City Council SFRA there are no known historical flooding events as a result of sewer flooding. Therefore, the risk of flooding from sewers is considered to be low for this site.

5.4. Groundwater Flood Risk

In general terms groundwater flooding can occur from three main sources, raised water tables, seepage and percolation, and groundwater recovery or rebound. If groundwater levels are naturally close to the surface, then this can present a flood risk during intense rainfall.

For this site the groundwater flood risk is considered to be low in accordance with Manchester City Council SFRA groundwater flood map.

5.5. Flooding from Other Sources/Infrastructure Failure

Non-natural or artificial sources of flooding that can occur as a result of structural, hydraulic or geotechnical failure of infrastructure that retains, transmits or controls the flow of water; such as reservoirs, lakes and canals etc.

The Environment Agency Flood Map for Planning shows that the site is at risk from flooding from reservoir breach.

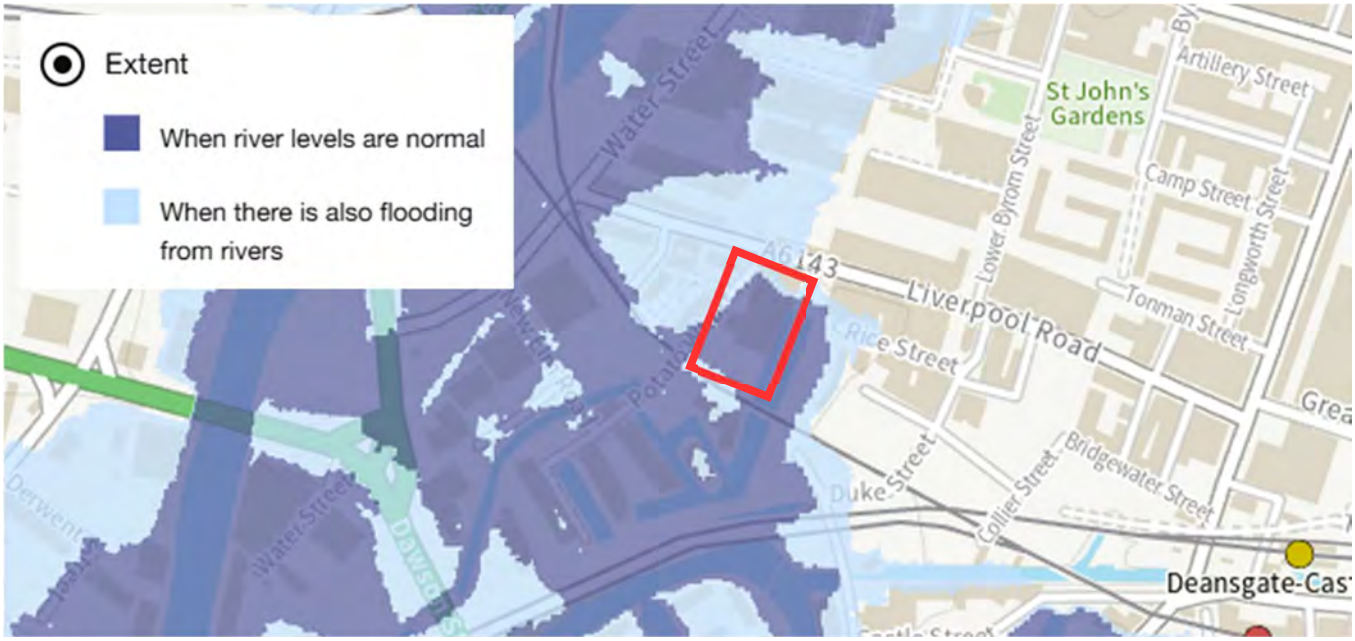


Figure 10 - Reservoir Flood Map for planning

In reference to the DEFRA's 'Reservoir Safety' Document "*England has an excellent reservoir safety record, and there have been no dam breaches resulting in the loss of life since reservoir safety legislation was first introduced in 1930.*"

As such the risk of flooding from reservoirs is low.

5.6. Summary of Flood Risk

Taking into consideration the evidence collated and the implementation of the recommended mitigation measures, the flood risk to the development can be summarised as indicated in the table below:

Table 4: Summary of mitigates sources of flood risk

Source	*Mitigated Risk*
Fluvial	Medium
Coastal – Sea	N/A
Coastal – Estuarine	N/A
Pluvial Flooding	Low
Sewer - SWS, FWS, CS, CSO	Low
Groundwater	Low
Other Sources	High

The Y Club is a Leisure facility and is therefore considered as less vulnerable within Table 2: Flood Risk Vulnerability and flood zone `compatibility` in the Technical Guidance for the NPPF. This type of development would be wholly appropriate for Flood Zone 2.

Table 5 – Extract from Table 2: Flood Risk Vulnerability and Flood Zone Compatibility (Technical Guidance for NPPF, Gov.co.uk)

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	*X*	Exception Test Required	✓	✓
Zone 3b	Exception Test Required	*X*	*X*	*X*	✓

Key:

✓ Development is appropriate

X Development should not be permitted

5.7. Mitigation Measures

The assessment of the fluvial flood data described in section 5.1 indicates that the site could be subjected to 400mm and 590mm of flooding during a 1 in 100 year plus 70% climate change event and 1 in 1000-year event respectively.

It is understood that much of the flood water in July 2019 and January 2025 entered the building via the fire door and windows located on the east side of the building. It is therefore proposed to retrospectively install flood resilient and resistant mitigation measures to prevent water ingress into the building up to a depth of 600mm as per the structural guidance noted within the Environment Agency's standing advice. These measures include:

- Installing dwarf walls and a new high performance window system in place of the existing windows on the Canalside elevation.
- Replacing the existing doors on the south and western elevation with UPVC flood-proof doors
- Installation of dwarf wall and new window system on south elevation

It is also recommended to raise any flood sensitive equipment, such as sockets and electrical items, a minimum of 300mm above the 1 in 1000-year flood event level of 26.34mAOD, where possible.

Due to the requirement for level access at the main entrance into the Y Club on the Canalside, a flood-proof door could not be installed at this location. To prevent the ingress of water during a flood event temporary internal flood barriers will be installed by the site management team.

The site is shown to be located within the Environment Agency's early warning flood alert service area. Upon advice from BDP, the maintenance team at the Y Club have recently signed up to this free of charge service which offers a warning of flooding from rivers, the Sea or groundwater. However, flood warnings associated with surface

water flooding, also known as flash flooding, are not available. Pre-emptive warnings from this service would allow for any temporary flood resistance measures to be deployed and provide adequate time for the building to be evacuated, if required.

It is also recommended that an evacuation plan is prepared which includes evacuation routes to a safe place of refuge located in flood zone 1. For the Y Club, the nearest destination would be up the external steps to Liverpool Street or on the ground floor of the Castlefield Hotel section of the building, which is located on higher ground. Example evacuation plans and templates are available to download from the EA website.

A CCTV Survey undertaken by Bentley Drains confirmed the building and associated hardstanding areas to be positively drained, discharging into the nearby public combined sewer. To ensure flood waters can be adequately drained after an event, it is recommended that the pipes are regularly maintained to ensure free flow conditions for effective conveyance of flows away from the site. It is also recommended that the gullies are kept free of debris and are jetted on a regular basis so that surface water can be removed efficiently.

The CCTV survey of the existing car park indicated a total of seven gullies located within the central and northern regions of the car park at engineered low points. Additional channel drains could be installed along the southwestern side of the building to improve the drain down time of the flood waters within the car park after an extreme flood event. This will not reduce the risk of flooding to the site but will aid in the recovery of the site after the event has occurred.

5.8. Residual Risk

A review of the Environment Agency's modelled flood level data confirms the site to currently lie within Flood Zone 2 with an expected increase in risk to flood zone 3 in the future as a result of climate change. The mitigation measures proposed in section 5.7 are intended to prevent the ingress of flood water up to a depth of 600mm to provide adequate protection to the existing building.

Since the site has historically been inundated due to ingress through the existing doors and windows on the Canalside elevation, a level of flood storage has unintentionally been utilised within the building in past flood events (figure 11). By incorporating the mitigation measures, the volume of water that would typically enter the building during a flood event will now be displaced. Based on the 1 in 100 year plus 70% climate change event and an anticipated flood depth of 400mm across the Y Club footprint of the existing building, an estimated 587m^3 of flood water could be displaced as a result of the proposed mitigation measures.



Figure 11 – Estimated Flood Area 1 in 100 year + 70% Climate Change Event

The site is situated at the base of the Castlefield Bowl, which is aptly named in reference to the external levels rising in a bowl like feature around the vicinity of the site. A review of the external levels along the circumference of Castlefield Bowl shows levels to rise steeply up to 29.70mAOD on the north and east boundaries of the bowl and up to 26.6mAOD on the southern boundary. On the western boundary there is low point of 26.4mAOD at the site entrance off Potato Wharf. Due to these external levels, the displaced volume can be contained within the Castlefield Bowl feature up to a depth of 26.40mAOD without impacting on neighbouring properties (figure 12). Flows in excess of this will overtop the site entrance and flow down Potato Wharf and into the open watercourse channel located adjacent to Potato Wharf approximately 48m south west of the site.



Figure 12 - Estimated Flood Area with displaced flood volume from Y Club for 1 in 100 year + 70% Climate Change Event

Taking into account the proposed mitigation measures and overland flood routes, the existing building is considered to be protected up to the 1 in 1000 year event without increasing the risk of flooding to neighbouring properties.

6.0. Conclusion

This Flood Risk Assessment has been prepared to assess existing and future flood risk to the existing Manchester YMCA building and to identify appropriate mitigation measures following historic and recent flooding events.

The assessment confirms that the site is located in Flood Zone 2 and is primarily at risk from fluvial flooding associated with elevated water levels in the Bridgewater Canal as a result of the direct interaction with the River Medlock. Environment Agency flood mapping, Product 4 modelling data, LiDAR topographic information, and historical flood records have been used to inform the assessment. Other potential sources of flooding, including surface water, sewer, groundwater and reservoir failure, have also been assessed and are considered to pose a low risk of flooding to the site.

A suite of proportionate and practical flood resistance and resilience measures has been proposed to mitigate the known flood mechanisms observed during the July 2019 and January 2025 events. These measures are expected to significantly reduce the likelihood and consequences of flood water entering the building during future events, including those influenced by climate change.

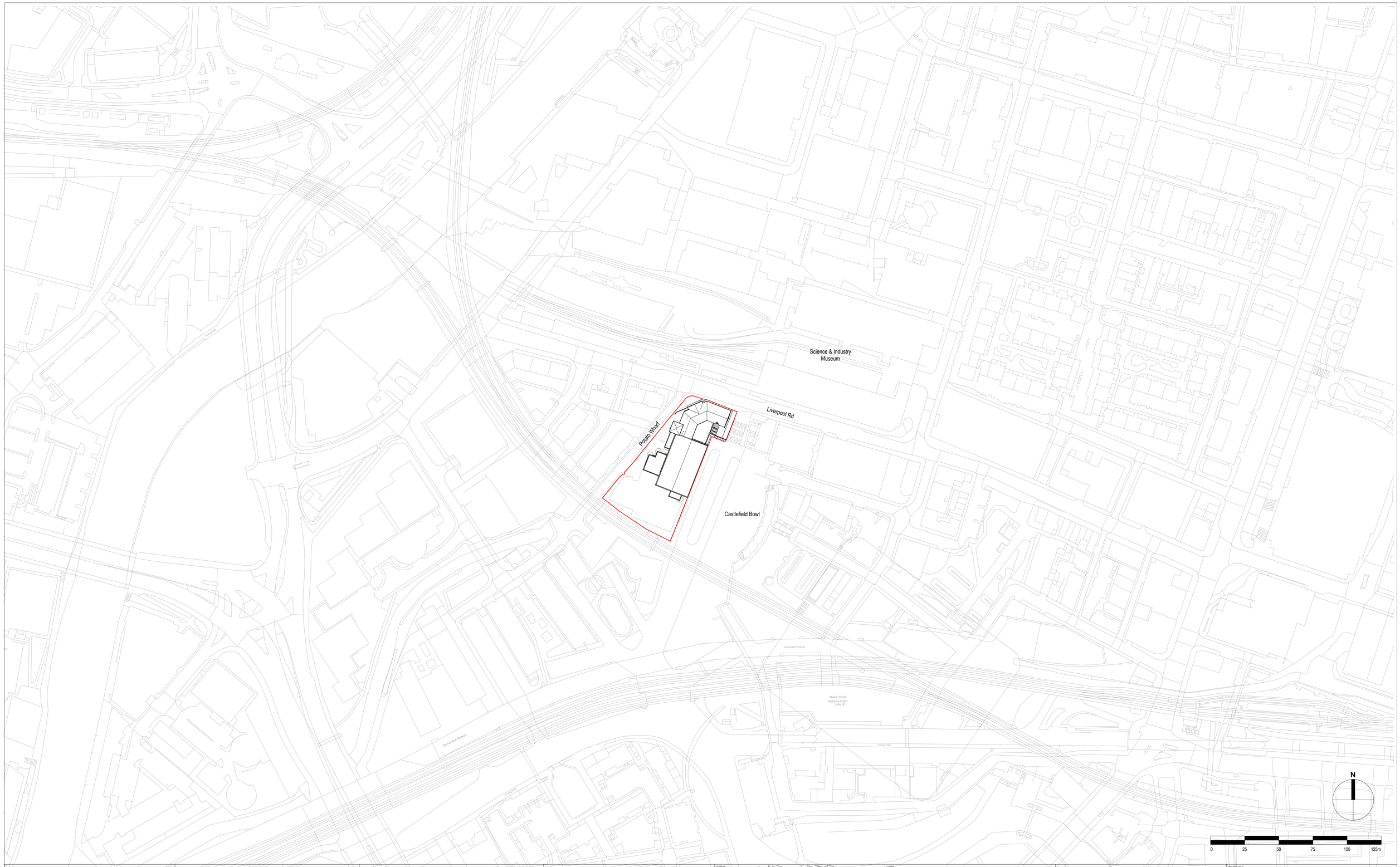
A review of external levels and overland flood routes shows that any displaced volume from the proposed mitigation measures can be safely stored within Castlefield Bowl up to the 1 in 100 year plus 70%climate change event. Any flows in excess of this event will flow overland along Potato Wharf into an open watercourse located 52m to the south west of the site. As such, the risk of flooding to neighbouring properties will not be increased as a result of the proposed mitigation measures.

Due to the presence of higher ground located on Liverpool Street and within the adjacent Castlefield Hotel section of the building, safe access and egress up to higher ground in flood zone 1 is achievable during an extreme event. An evacuation plan is also recommended to be put in place and conveyed to all staff members to ensure any visitors can be safely evacuated if required.

The proposed mitigation measures will be able to protect the building from water ingress up to 600mm which is equivalent to the predicted flood depth for the 1 in 1000 year flood event. As such, the building will be protected for its lifetime.

On this basis, it is concluded that the proposed flood mitigation measures are acceptable in flood risk terms and that the development may proceed, subject to the implementation and ongoing maintenance of the recommended mitigation measures.

Appendix A – Site Location Plan



BUILDING DESIGN PARTNERSHIP SHALL HAVE NO RESPONSIBILITY FOR ANY USE MADE OF THIS DOCUMENT OTHER THAN FOR THAT WHICH IT WAS PREPARED AND ISSUED.

ALL DIMENSIONS SHOULD BE CHECKED ON SITE.

DO NOT SCALE FROM THIS DRAWING

ANY DRAWING ERRORS OR DIVERGENCIES SHOULD BE BROUGHT TO THE ATTENTION OF BUILDING DESIGN PARTNERSHIP AT THE ADDRESS SHOWN BELOW.

DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING BEFORE WORK COMMENCES:
- THE CDM DESIGN ISSUES REGISTER
- THE BDP RISK SERIES OF DRAWINGS
- THE PROJECT CDM RISK REGISTER

NOTES

All existing information based off survey information received by Ridge in July 2025.

Referenced: 5029483-RDG-XX-XX-M-GS-990000-P01-Revit Model

All dimensions to be checked on site by specialist subcontractor with suitable tolerances allowed prior to manufacture.
Any discrepancy to be reported to Main Contractor and Architect.

REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
P01	First Issue	GB	AC	01/05/26

KEYPLAN



CLIENT

YMCA

BDP.

11 Ducie Street
PO Box 85
Piccadilly Basin
Manchester
M60 3JA
United Kingdom

T +44 (0)161 828 2200
www.bdp.com

PROJECT TITLE
YMCA - Manchester

BDP JOB NUMBER
P3004812

DRAWING TITLE
Site Location Plan

SCALE @ A1
1 : 1250

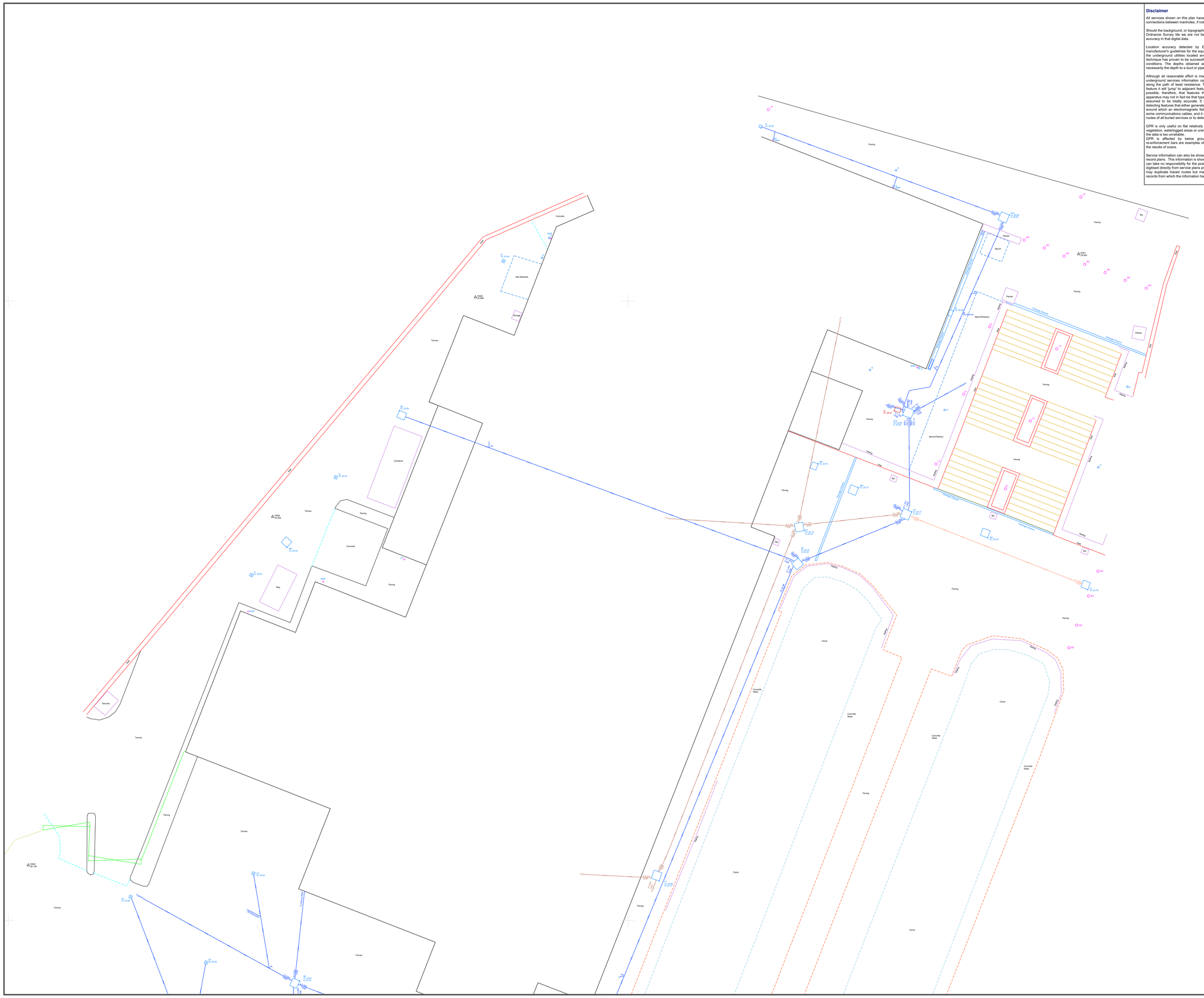
DATE FIRST ISSUED
01/05/26

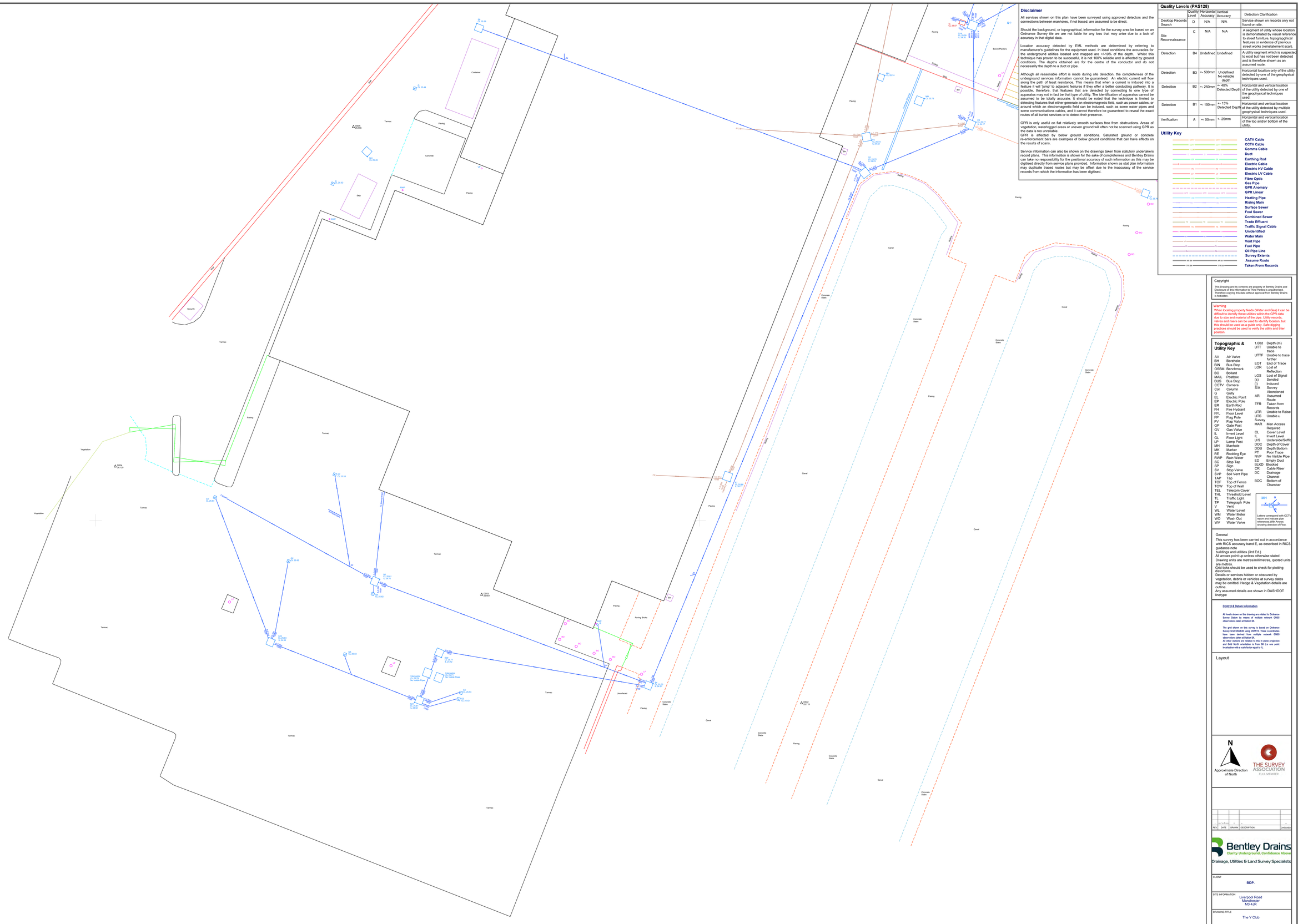
DRAWING No.
4812-BDP-ZZ-XX-D-A-000002

REVISION
P01

C:\REVIT_LOCAL\v2025\YMCA-BDP-XX-XX-M3-A-00002 - Proposed_mb44980.rvt

Appendix B – CCTV Survey


Paving
Concrete
Site Materials
Storage
Tarmac
Container
Paving
Concrete
Slop
Paving
Tarmac
Security
Tarmac
Paving
Tarmac
Tarmac
Tarmac
Paving
Bench/Planters
Planter
Bench
Bin
Paving
Planter
Overhead Canopy
Overhead Canopy
Planter
Paving
Paving
Bench/Planters
Paving
Paving
Paving
Overhead Canopy
Overhead Canopy
Railing
Railing
Railing



Disclaimer

All services shown on this plan have been surveyed using approved detectors and the connections between manholes, if not traced, are assumed to be direct.

Should the background, or topographical, information for the survey area be based on an Ordnance Survey tile we are not liable for any loss that may arise due to a lack of accuracy in that digital data.

Location accuracy detected by EML methods are determined by referring to manufacturer's guidelines for the equipment used. In ideal conditions the accuracies for the underground utilities located and mapped are +/-10% of the depth. Whilst this technique has proven to be successful, it is not 100% reliable and is affected by ground conditions. The depths obtained are for the centre of the conductor and do not necessarily the depth to a duct or pipe.

Although all reasonable effort is made during site detection, the completeness of the underground services information cannot be guaranteed. An electric current will flow along the path of least resistance. This means that when a current is induced into a feature it will "jump" to adjacent features if they offer a better conducting pathway. It is possible, therefore, that features that are detected by connecting to one type of apparatus may not in fact be that type of utility. The identification of apparatus cannot be assumed to be totally accurate. It should be noted that the technique is limited to detecting features that either generate an electromagnetic field, such as power cables, or around which an electromagnetic field can be induced, such as some water pipes and some communications cables, and it cannot therefore be guaranteed to reveal the exact routes of all buried services or to detect their presence.

GPR is only useful on flat relatively smooth surfaces free from obstructions. Areas of vegetation, waterlogged areas or uneven ground will often not be scanned using GPR as the data is too unreliable.

GPR is affected by below ground conditions. Saturated ground or concrete re-enforcement bars are examples of below ground conditions that can have effects on the results of scans.

Service information can also be shown on the drawings taken from statutory undertakers record plans. This information is shown for the sake of completeness and Bentley Drains can take no responsibility for the positional accuracy of such information as this may be digitised directly from service plans provided. Information shown as stat plan information may duplicate traced routes but may be offset due to the inaccuracy of the service records from which the information has been digitised.

Quality Levels (PAS128)

	Quality Level	Horizontal Accuracy	Vertical Accuracy	Detection Clarification
Desktop Records Search	D	N/A	N/A	Service shown on records only not found on site.
Site Reconnaissance	C	N/A	N/A	A segment of utility whose location is demonstrated by visual reference to street furniture, topographical features or evidence of previous street works (reinstatement scar).
Detection	B4	Undefined	Undefined	A utility segment which is suspected to exist but has not been detected and is therefore shown as an assumed route.
Detection	B3	+- 500mm	Undefined No reliable depth	Horizontal location only of the utility detected by one of the geophysical techniques used.
Detection	B2	+- 250mm	+- 40% Detected Depth	Horizontal and vertical location of the utility detected by one of the geophysical techniques used.
Detection	B1	+- 150mm	+- 15% Detected Depth	Horizontal and vertical location of the utility detected by multiple geophysical techniques used.
Verification	A	+- 50mm	+- 25mm	Horizontal and vertical location of the top and/or bottom of the utility.

Utility Key

- CATV Cable
- CCTV Cable
- Comms Cable
- Duct
- Earthing Rod
- Electric Cable
- Electric HV Cable
- Electric LV Cable
- Fibre Optic
- Gas Pipe
- GPR Anomaly
- GPR Linear
- Heating Pipe
- Rising Main
- Surface Sewer
- Foul Sewer
- Combined Sewer
- Trade Effluent
- Traffic Signal Cable
- Unidentified
- Water Main
- Vent Pipe
- Fuel Pipe
- Oil Pipe Line
- Survey Extents
- Assume Route
- Taken From Records

Copyright

This Drawing and its contents are property of Bentley Drains and Disclosure of this information to Third Parties is unauthorised. Therefore copying this data without approval from Bentley Drains is forbidden.

Warning

When locating property feeds (Water and Gas) it can be difficult to identify these utilities within the GPR data due to size and material of the pipe. Utility records, valves and risers can be used to identify location, but this should be used as a guide only. Safe digging practices should be used to verify the utility and their position.

Topographic & Utility Key

AV	Air Valve	1.00d	Depth (m)
BH	Borehole	UTT	Unable to trace
BIN	Bus Stop	UTTF	Unable to trace further
OSBM	Benchmark	EOT	End of Trace
BO	Bollard	LOR	Lost of Reflection
MAIL	Postbox	LOS	Lost of Signal
BUS	Bus Stop	(s)	Sonded
CCTV	Camera	(i)	Induced
Col	Column	S/A	Survey Abondoned
G	Gully	AR	Assumed Route
EL	Electric Point	TFR	Taken from Records
EP	Electric Pole	UTR	Unable to Raise
ER	Earth Rod	UTS	Unable to Survey
FH	Fire Hydrant	MAR	Man Access Required
FFL	Floor Level	CL	Cover Level
FP	Flag Pole	IL	Invert Level
FV	Flap Valve	U/S	Underside/Soffit
GP	Gate Post	DOC	Depth of Cover
GV	Gas Valve	DOB	Depth Bottom
IL	Invert Level	PT	Poor Trace
GL	Floor Light	NVP	No Visable Pipe
LP	Lamp Post	ED	Empty Duct
MH	Manhole	BLKD	Blocked
MK	Marker	CR	Cable Riser
RE	Rodding Eye	DC	Drainage Channel
RWP	Rain Water	BOC	Bottom of Chamber
SC	Stop Tap		
SP	Sign		
SV	Stop Valve		
SVP	Soil Vent Pipe		
TAP	Tap		
TOF	Top of Fence		
TOW	Top of Wall		
TEL	Telecom Cover		
THL	Threshold Level		
TL	Traffic Light		
TP	Telegraph Pole		
V	Vent		
WL	Water Level		
WM	Water Meter		
WO	Wash Out		
WV	Water Valve		

Letters correspond with CCTV report and indicate pipe references.With Arrows showing direction of Flow.

General

This survey has been carried out in accordance with RICS accuracy band E, as described in RICS guidance note
buildings and utilities (3rd Ed.)
All arrows point up unless otherwise stated
Drawing units are metres/millimetres, quoted units are metres
GPR data should be used to check for plotting distortions.
Details or services hidden or obscured by vegetation, debris or vehicles at survey dates may be omitted. Hedge & Vegetation details are outline.
Any assumed details are shown in DASHDOT linetype

Control & Datum Information

All levels shown on this drawing are related to Ordnance Survey Datum by means of multiple network OMDS observations taken at Station SX.

The grid shown on this survey is based on Ordnance Survey Grid OSGB36 using OSTN15. These co-ordinates have been derived from multiple network OMDS observations taken at Station SX.
All other stations are relative to this in plane projection and Grid North orientation is from SX (i.e one point localisation with a scale factor equal to 1).

Layout

Approximate Direction of North

THE SURVEY ASSOCIATION
FULL MEMBER

REV	DATE	DRAWN	DESCRIPTION	CHECKED

Bentley Drains
Clarity Underground, Confidence Above
Drainage, Utilities & Land Survey Specialists

CLIENT
BDP.

SITE INFORMATION
Liverpool Road
Manchester
M3 4JR

DRAWING TITLE
The Y Club

DRAWING REFERENCE Y124A	SCALE@A1 1/100
PROJECT REFERENCE Y124A	SHEET 2 of 2
	REV 1
SURVEYED JE, DS, JH	DRAWN DS
CHECKED RO	DATE 31/03/2026

Appendix C – Existing sewer records:

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

BDP

11
Ducie Street, BDP
Manchester,
M1 2JB

FAO:

Your Ref: YClub
Our Ref: UUPS-ORD-648549
Date: 08/05/2025

Dear Sirs

Location: YMCA Liverpool Road, Manchester, M3 4JN

I acknowledge with thanks your request dated 30/04/2025 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)".

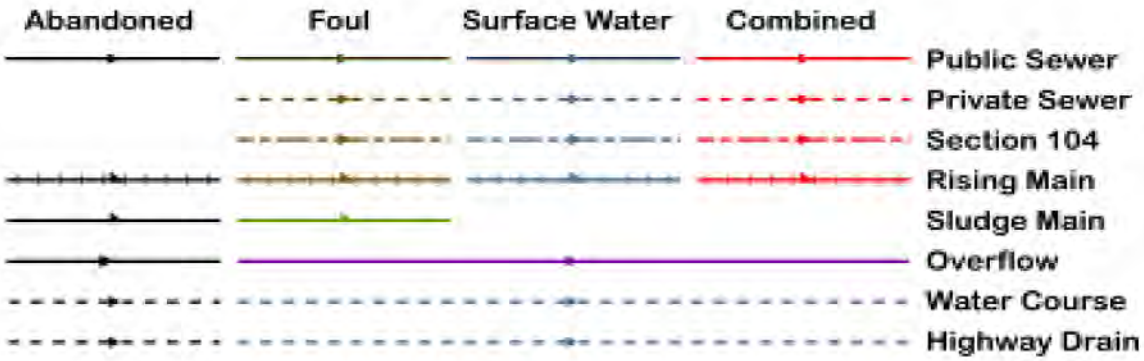
TERMS AND CONDITIONS:

- 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.

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

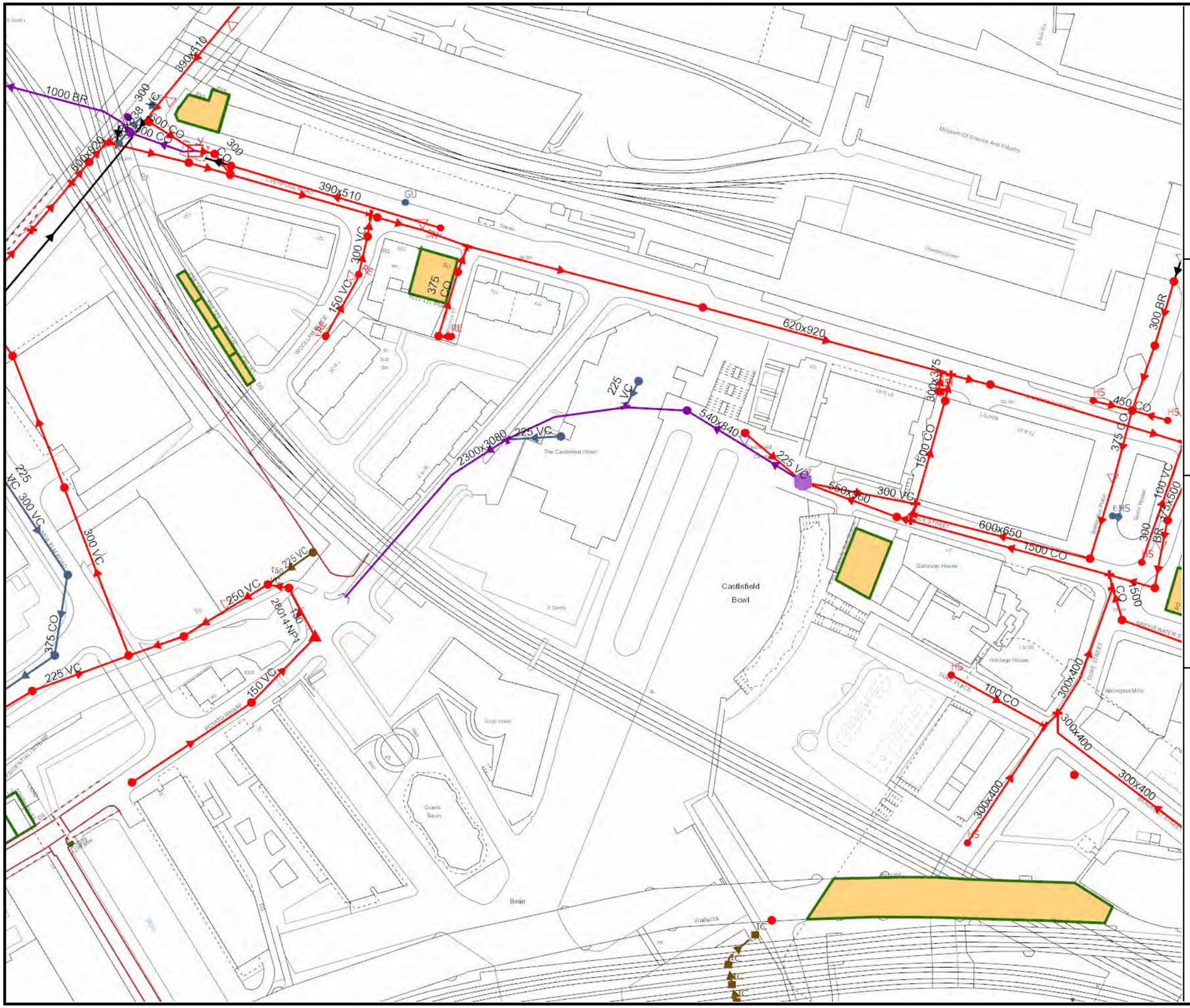
United Utilities
Water for the North West

Wastewater Symbology



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

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



United Utilities

Water for the North West

SEWER RECORDS

Address or Site Reference

YMCA Liverpool Road,
Manchester,
M3 4JN

Scale: 1:1250

Date: 08/05/2025

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.

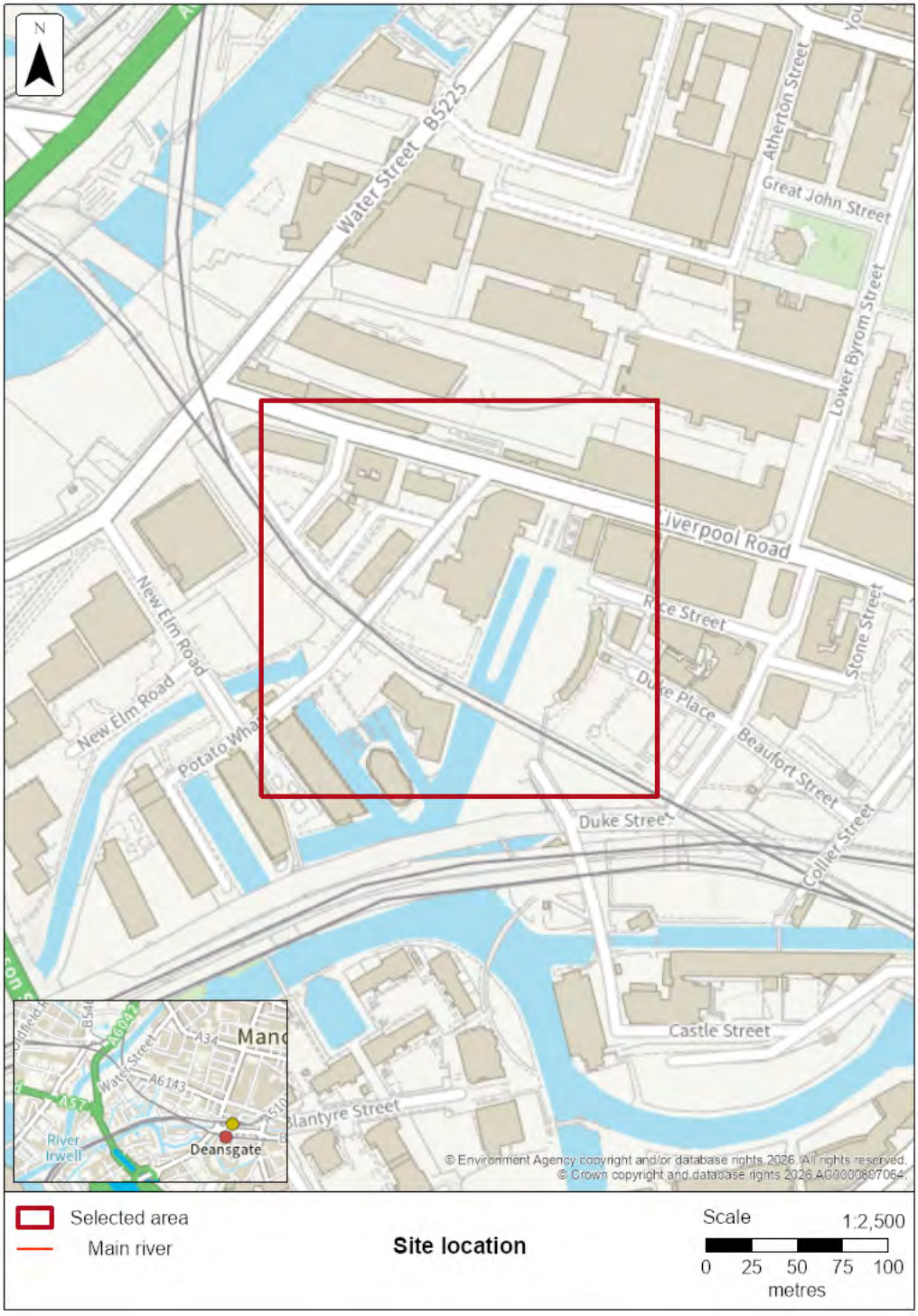
Crown copyright and database rights 2025 Ordnance Survey 0000813445. Unauthorised reproduction will infringe these copyrights.

Appendix D – EA Product 4 data:

Flood risk assessment data

Location of site: 383032 / 397754 (shown as easting and northing coordinates)
Document created on: 3 March 2026
This information was previously known as a product 4.
Customer reference number: 7NX8BAJ6K71U

Map showing the location that flood risk assessment data has been requested for.



How to use this information

You can use this information as part of a flood risk assessment for a planning application. To do this, you should include it in the appendix of your flood risk assessment.

> **We recommend that you work with a flood risk consultant to get your flood risk assessment.**

Included in this document

In this document you'll find:

- how to find information about surface water and other sources of flooding
- information on the models used
- definitions for the terminology used throughout
- flood map for planning (rivers and the sea)
- past floods
- modelled data
- climate change modelled data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Information that's unavailable

This document **does not** contain:

- flood defences and attributes

We aren't able to display flood defence locations and attributes as there are no formal flood defences in the area of interest.

Surface water and other sources of flooding

When using the surface water map on the check your long term flood risk service the following considerations apply:

- surface water extents are suitable for use in planning
- surface water climate change scenarios may help to inform risk assessments, but the available data fall short of what is required to assess planned development
- surface water depth information should not be used for planning purposes

To find out about other factors that might affect the flood risk of this location, you should also check:

- reservoir flood risk
- groundwater flood risk - you could use the British Geological Survey groundwater flooding data, groundwater: current status and flood risk and the guide on mining and groundwater constraints for development - further information may be available from the lead local flood authority (LLFA)
- your local planning authority's SFRA, which includes future flood risk

Your Lead Local Flood Authority is Manchester District.

For information about sewer flooding, contact the relevant water company for the area.

About the models used

Model name: Manchester Ship Canal 2018
Scenario(s): Normal operation, Latchford 1 gate closed, Latchford all gates closed. Date: 1 May 2020

Model name: River Medlock 2011
Scenario(s): No defences exist fluvial, no defences exist climate change fluvial
Date: 22 December 2010

These models contain the most relevant data for your area of interest.

Terminology used

Annual exceedance probability (AEP)

This refers to the probability of a flood event occurring in any year. The probability is expressed as a percentage. For example, a large flood which is calculated to have a 1% chance of occuring in any one year, is described as 1% AEP.

Metres above ordnance datum (mAOD)

All flood levels are given in metres above ordnance datum which is defined as the mean sea level at Newlyn, Cornwall.

Flood map for planning (rivers and the sea)

Your selected location is in flood zone 3.

Flood zone 3 shows the area at risk of flooding for an undefended flood event with a:

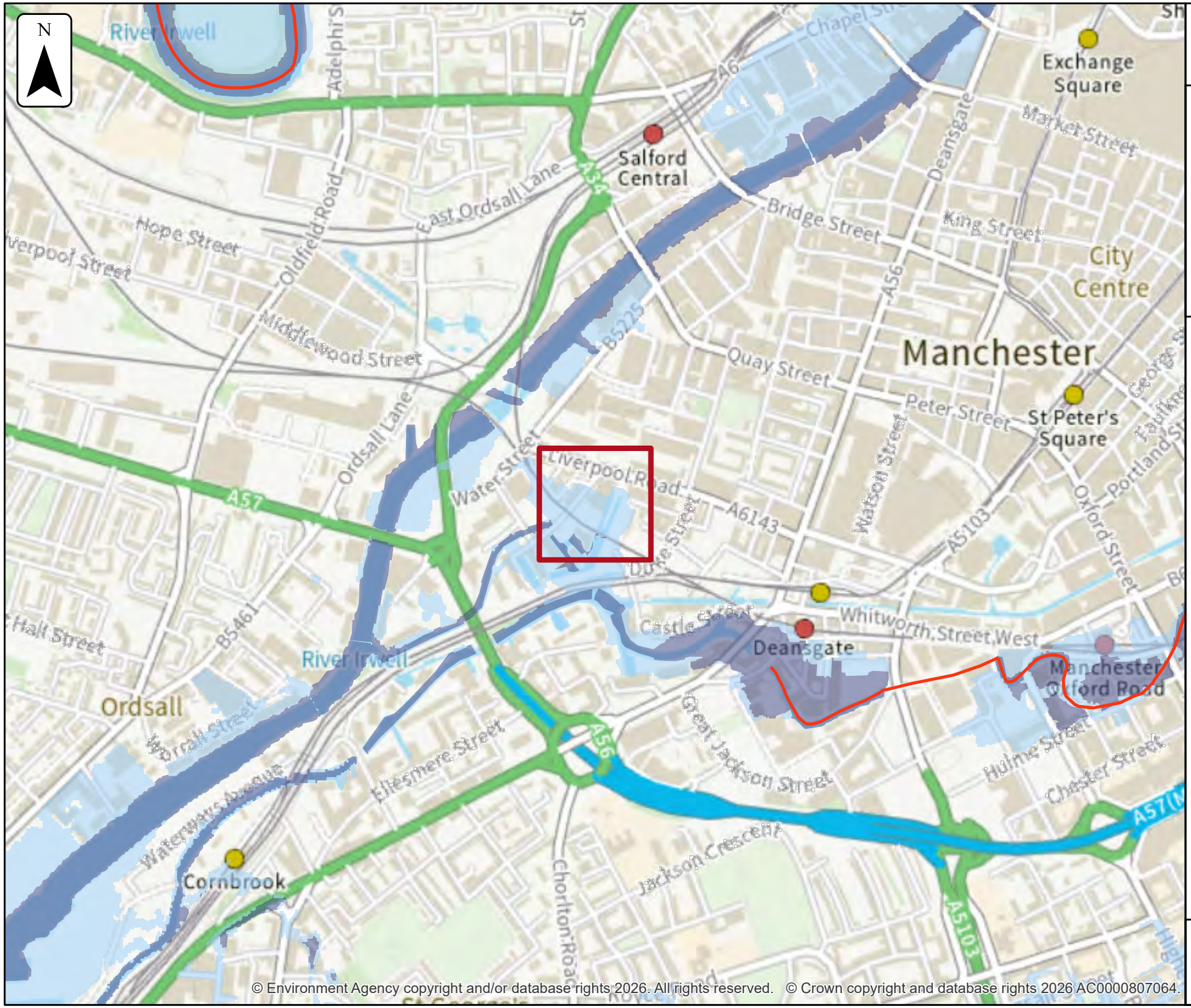
- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- between a 0.1% and 0.5% probability of occurring in any year for flooding from the sea
- between a 0.1% and 1% probability of occurring in any year for fluvial (river) flooding

It's important to remember that the flood zones on this map:

- refer to the land at risk of flooding and do not refer to individual properties
- refer to the probability of river and sea flooding, ignoring the presence of defences
- do not take into account potential impacts of climate change



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Environment Agency

Flood map for planning

Location (easting/northing)
383032/397754

Scale
1:10,000

Created
3 Mar 2026

- Selected area
- Main river
- Flood Zone 3
- Flood Zone 2

0 100 200 300 400 500
metres

Past floods

Past flood events included in this document

The recorded flood outlines included in this document are for areas of land local to your site location that have been flooded by any of these sources:

- ephemeral water
- main rivers
- ordinary watercourses
- the sea
- unknown

Data limitations

The outlines do not include flooding from:

- drainage where rainfall has led to surface water ponding or overland runoff
- artificial, water-bearing sewer, water supply and wastewater treatment pipelines

Changes to flood defences

The defences (also known as assets) that were in place may also have changed. For example, assets may have been built more recently than the last recorded flood outline.

What the recorded flood outlines dataset is

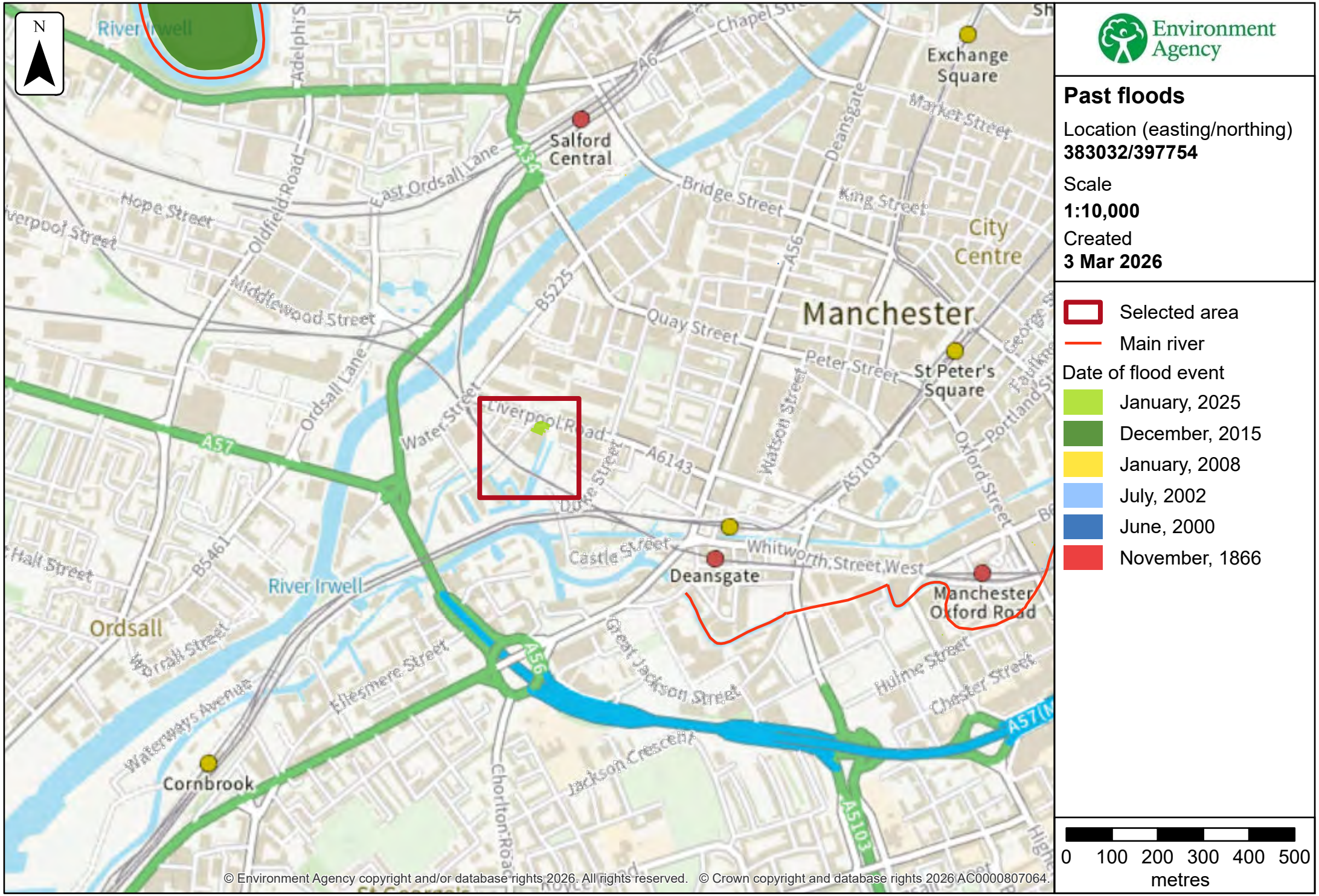
The recorded flood outlines are a geographical information system (GIS) data layer that show our verified records of areas that have flooded in the past from:

- rivers
- the sea
- groundwater
- surface water

Download the complete recorded flood outlines dataset, which includes data quality flags for outlines recorded after April 2020. This indicates the confidence we have in an outline.

Get flood information from other organisations

Contact Manchester District Lead Local Flood Authority (LLFA) and your drainage board to get information about past flooding caused by surface water or drainage systems.



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Environment Agency

Past floods

Location (easting/northing)
383032/397754

Scale
1:10,000

Created
3 Mar 2026

- Selected area
- Main river

Date of flood event

- January, 2025
- December, 2015
- January, 2008
- July, 2002
- June, 2000
- November, 1866

0 100 200 300 400 500
metres

Data on past flood events

Start date	End date	Source of flood	Cause of flood	Affects location
1 January 2025	1 January 2025	unknown	unknown	Yes
26 December 2015	26 December 2015	main river	overtopping of defences	No
21 January 2008	22 January 2008	main river	unknown	No
30 July 2002	31 July 2002	ordinary watercourse	unknown	No
1 June 2000	2 June 2000	unknown	channel capacity exceeded (no raised defences)	No
01 November 1866	02 November 1866	main river	channel capacity exceeded (no raised defences)	No

Modelled data

This section provides details of different scenarios we have modelled and includes the following (where available):

- outline maps showing the area at risk from flooding in different modelled scenarios
- modelled node point map(s) showing the points used to get the data to model the scenarios and table(s) providing details of the flood risk for different return periods
- map(s) showing the approximate water levels for the return period with the largest flood extent for a scenario and table(s) of sample points providing details of the flood risk for different return periods

Climate change

The climate change data included in the models may not include the latest flood risk assessment climate change allowances. Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

The Environment Agency will incorporate the new allowances into future modelling studies. For now, it's your responsibility to demonstrate that new developments will be safe in flood risk terms for their lifetime.

Modelled scenarios

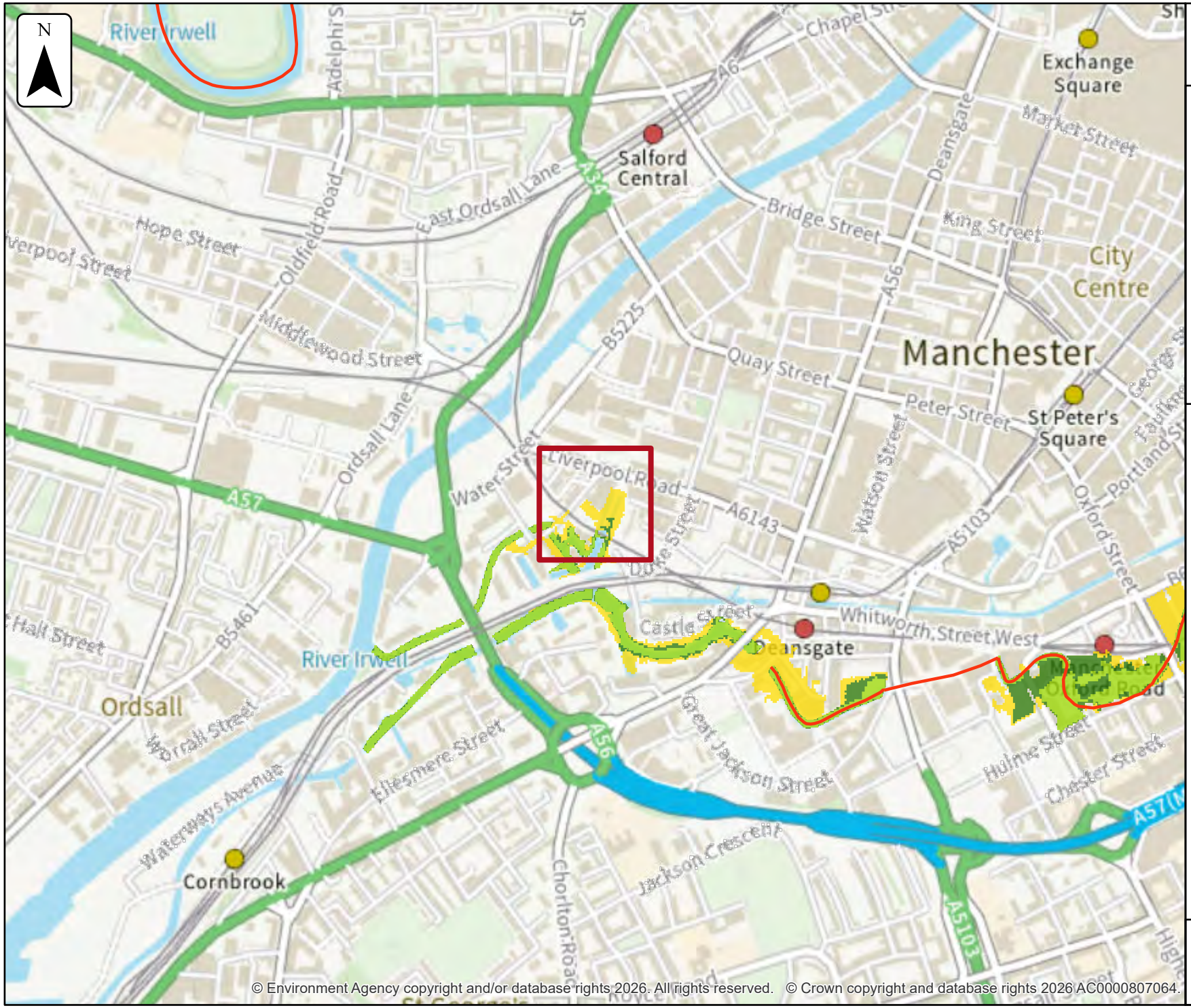
The following scenarios are included:

- No defences exist modelled fluvial: risk of flooding from rivers where there are no flood defences
- No defences exist climate change modelled fluvial: risk of flooding from rivers where there are no flood defences, including estimated impact of climate change

No data available

We do not have any height or depth data at this location for the following models:

Model name: Manchester Ship Canal 2018
Scenario(s): No defences exist climate change modelled fluvial, No defences exist modelled fluvial



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Environment Agency

No defences exist climate change modelled fluvial extent

Location (easting/northing)
383032/397754

Scale
1:10,000

Created
3 Mar 2026

Model name
River Medlock 2011

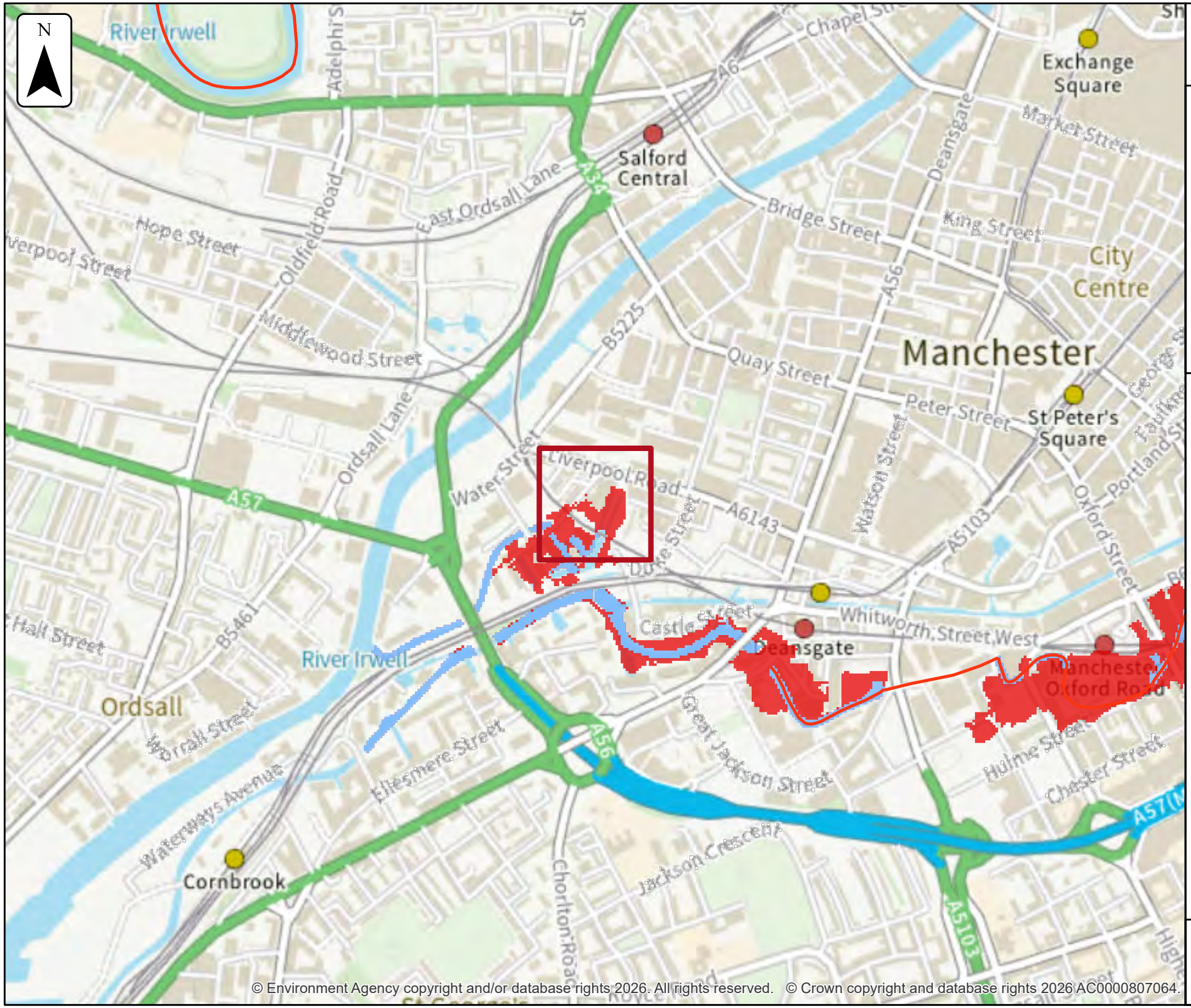
- Selected area
- Main river

Modelled flood extent

- 1% AEP (+20%)
- 1% AEP (+35%)
- 1% AEP (+70%)

Flood extents may not be visible where they overlap other return periods

0 100 200 300 400 500
metres



Environment Agency

No defences exist modelled fluvial extent

Location (easting/northing)
383032/397754

Scale
1:10,000

Created
3 Mar 2026

Model name
River Medlock 2011

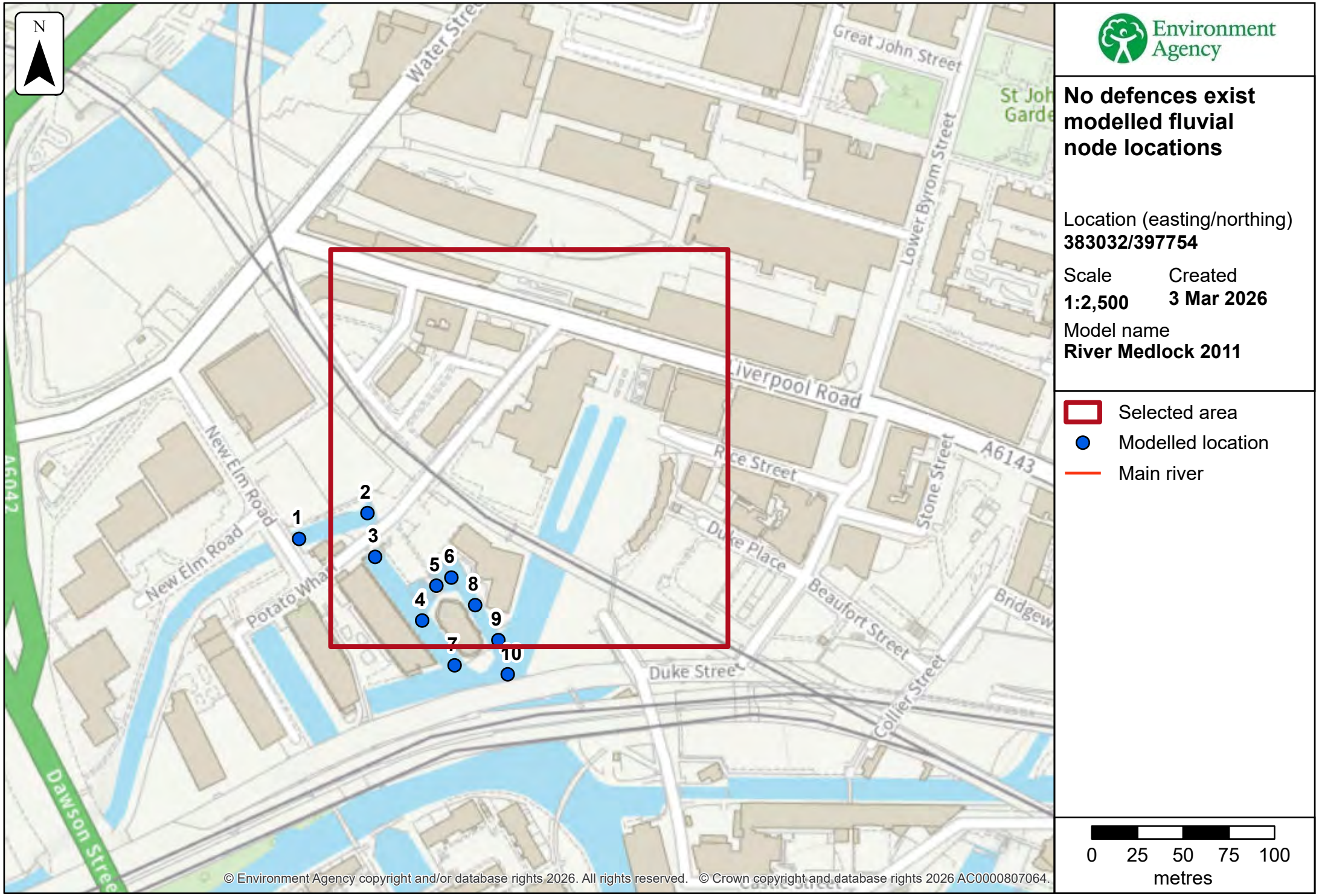
- Selected area
- Main river

Modelled flood extent

- 1% AEP
- 0.1% AEP

Flood extents may not be visible where they overlap other return periods

0 100 200 300 400 500
metres



Environment Agency

No defences exist modelled fluvial node locations

Location (easting/northing)
383032/397754

Scale
1:2,500

Created
3 Mar 2026

Model name
River Medlock 2011

- Selected area
- Modelled location
- Main river

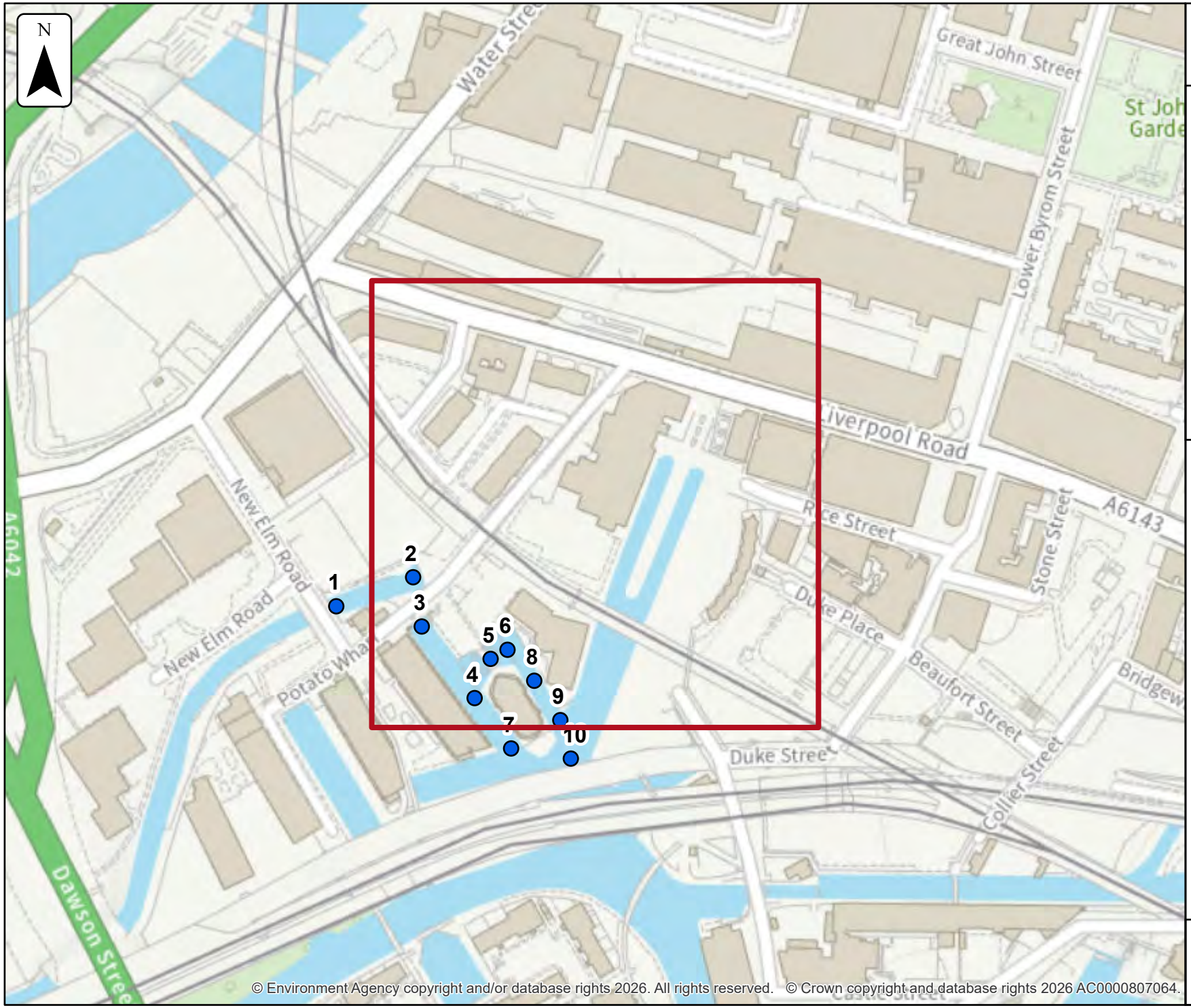
0 25 50 75 100
metres

Modelled node locations data

No defences exist

Label	Modelled location ID	Easting	Northing	4% AEP	1% AEP	0.1% AEP	4% AEP	1% AEP	0.1% AEP
				Level	Level	Level	Flow	Flow	Flow
1	1468092	382906	397705	24.09	24.16	24.65	30.20	31.45	37.36
2	1468129	382943	397719	24.16	24.23	24.75	30.21	31.45	34.99
3	1468065	382947	397695	25.52	25.69	26.34	8.18	8.67	10.33
4	1468005	382973	397660	25.52	25.69	26.34	8.18	8.67	11.51
5	1468038	382981	397679	25.43	25.64	26.33	16.99	17.82	19.89
6	1468011	382989	397684	25.52	25.69	26.36	8.83	9.14	13.41
7	1468175	382991	397636	25.52	25.69	26.34	8.18	8.68	11.30
8	1468161	383002	397668	25.52	25.69	26.32	8.83	9.12	21.80
9	1468102	383015	397649	25.52	25.69	26.34	8.83	9.10	20.12
10	1468168	383020	397631	25.52	25.69	26.34	8.82	9.15	20.80

Data in this table comes from the River Medlock 2011 model.
Level values are shown in mAOD, and flow values are shown in cubic metres per second.
Any blank cells show where a particular scenario has not been modelled for this location.



Environment Agency

No defences exist climate change modelled fluvial node locations

Location (easting/northing)
383032/397754

Scale
1:2,500

Created
3 Mar 2026

Model name
River Medlock 2011

Selected area
Modelled location
Main river

0 25 50 75 100
metres

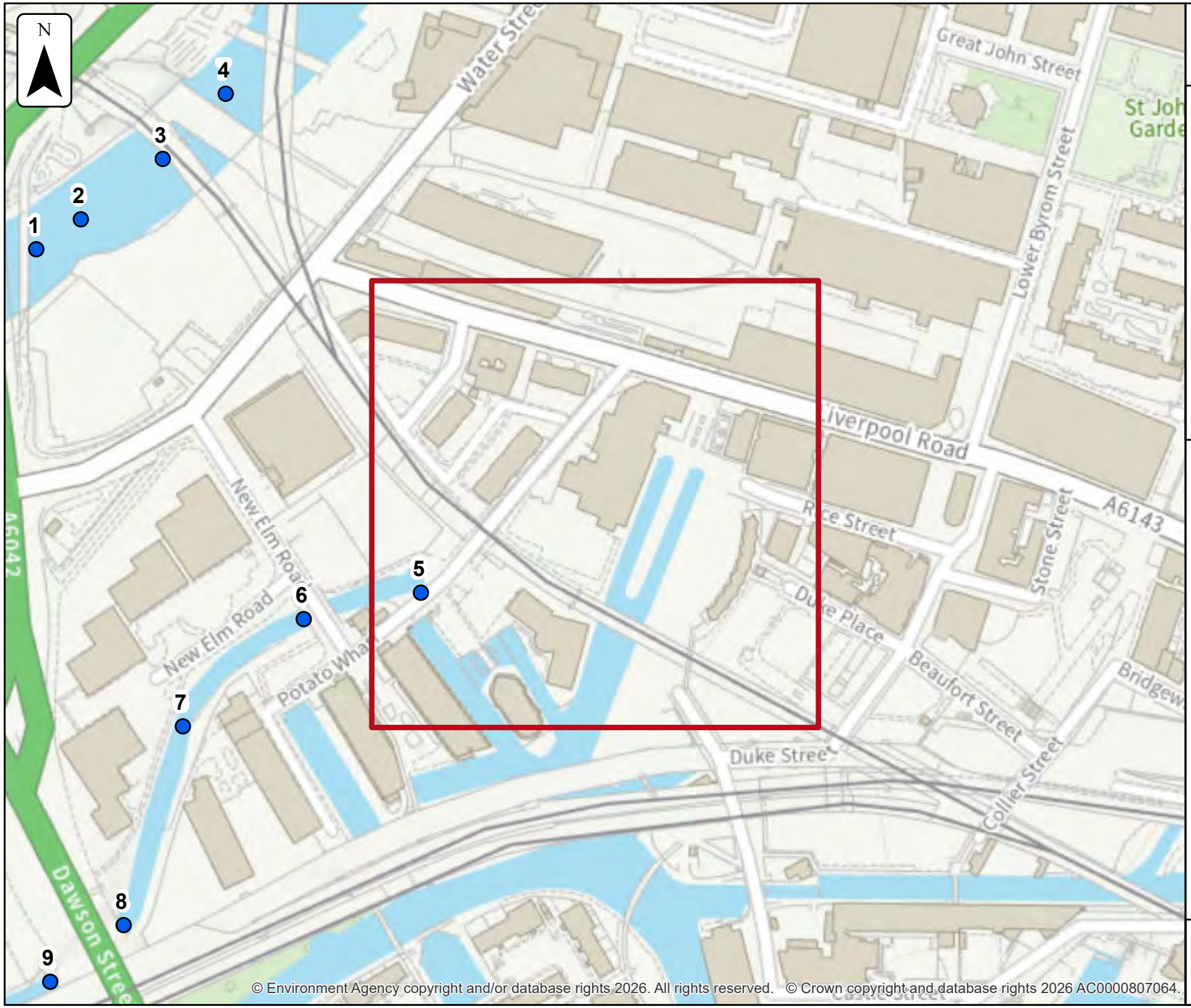
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Modelled node locations data

No defences exist climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+20%)	1% AEP (+35%)	1% AEP (+70%)	1% AEP (+20%)	1% AEP (+35%)	1% AEP (+70%)
				Level	Level	Level	Flow	Flow	Flow
1	1468092	382906	397705	24.22	24.26	24.34	32.40	33.26	34.57
2	1468129	382943	397719	24.29	24.34	24.41	32.40	33.26	34.57
3	1468065	382947	397695	25.82	25.91	26.15	9.01	9.20	10.03
4	1468005	382973	397660	25.82	25.91	26.15	9.01	9.19	10.12
5	1468038	382981	397679	25.77	25.87	26.13	18.34	18.63	19.66
6	1468011	382989	397684	25.82	25.91	26.16	9.52	9.62	11.20
7	1468175	382991	397636	25.82	25.91	26.15	8.99	9.22	10.12
8	1468161	383002	397668	25.82	25.90	26.15	9.40	9.62	11.45
9	1468102	383015	397649	25.82	25.91	26.19	9.29	9.48	11.77
10	1468168	383020	397631	25.82	25.91	26.16	9.41	9.80	11.77

Data in this table comes from the River Medlock 2011 model.
Level values are shown in mAOD, and flow values are shown in cubic metres per second.
Any blank cells show where a particular scenario has not been modelled for this location.



Environment Agency

Modelled fluvial node locations

Location (easting/northing)
383032/397754

Scale
1:2,500

Created
3 Mar 2026

Model name **Manchester Ship 2018**

Selected area

Modelled location

Main river

0 25 50 75 100
metres

					Normal Operation											Latchford 1 Gate Closed	Latchford all Gates Closed	
Map Reference	Model Node Reference	Easting	Northing	Data	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	4 % AEP (1 in 25 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% increase in flow	1 % AEP (1 in 100 year) + 35% increase in flow	1 % AEP (1 in 100 year) + 70% increase in flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year)	0.1 % AEP (1 in 1000 year)
1	ea013_0251_IRWZ01_0597	382759	397877	Modelled Water Level (m aodN)	22.91	23.14	23.49	23.70	23.82	23.98	24.41	24.49	25.48	24.31	25.74	23.98	23.98	25.77
				Modelled Flow (cumecs)	310.41	351.49	411.49	445.52	466.81	495.95	573.68	589.44	743.74	553.33	771.80	495.95	495.95	768.42
2	ea013_0251_IRWZ01_0637	382781	397893	Modelled Water Level (m aodN)	22.87	23.09	23.42	23.61	23.73	23.88	24.27	24.35	25.29	24.18	25.55	23.88	23.88	25.58
				Modelled Flow (cumecs)	310.39	351.48	411.47	445.50	466.80	495.93	573.65	589.41	745.07	553.30	775.26	495.93	495.93	773.69
3	ea013_0251_IRWZ01_0691	382822	397924	Modelled Water Level (m aodN)	23.05	23.29	23.64	23.85	23.97	24.13	24.54	24.62	25.54	24.45	25.79	24.13	24.13	25.82
				Modelled Flow (cumecs)	310.37	351.45	411.44	445.45	466.75	495.88	573.59	589.34	745.05	553.24	773.93	495.88	495.88	770.44
4	ea013_0251_IRWZ01_0737	382854	397956	Modelled Water Level (m aodN)	23.15	23.41	23.78	23.99	24.12	24.29	24.72	24.81	25.84	24.62	26.13	24.29	24.29	26.16
				Modelled Flow (cumecs)	310.37	351.45	411.44	445.45	466.75	495.88	573.59	589.34	745.05	553.24	773.93	495.88	495.88	770.44
5	ea013_0251_MEDZ01_0480	382946	397714	Modelled Water Level (m aodN)	23.89	24.09	24.33	24.57	24.73	24.86	25.34	25.41	25.94	25.20	26.53	24.86	24.86	26.54
				Modelled Flow (cumecs)	32.90	38.43	45.39	52.76	57.93	62.30	79.44	82.26	104.14	74.52	127.68	62.30	62.30	128.24
6	ea013_0251_MEDZ01_0413	382892	397699	Modelled Water Level (m aodN)	23.63	23.80	24.00	24.20	24.34	24.45	24.84	24.90	25.32	24.73	25.75	24.45	24.45	25.76
				Modelled Flow (cumecs)	32.91	38.44	45.40	52.78	57.94	62.32	79.46	82.28	103.75	74.53	126.58	62.32	62.32	127.01
7	ea013_0251_MEDZ01_0322i	382830	397647	Modelled Water Level (m aodN)	23.31	23.47	23.65	23.82	23.95	24.05	24.41	24.47	25.00	24.30	25.38	24.05	24.05	25.43
				Modelled Flow (cumecs)	32.96	38.50	45.47	52.87	58.03	62.42	79.60	82.42	103.68	74.66	126.00	62.42	62.42	126.37
8	ea013_0251_MEDZ01_0230	382803	397548	Modelled Water Level (m aodN)	22.66	22.84	23.12	23.29	23.41	23.53	23.88	23.95	24.89	23.82	25.24	23.53	23.53	25.28
				Modelled Flow (cumecs)	32.97	38.51	45.51	52.90	58.05	62.43	79.61	82.43	103.25	74.68	124.54	62.44	62.44	124.80
9	ea013_0251_MEDZ01_0191	382767	397528	Modelled Water Level (m aodN)	22.66	22.84	23.12	23.29	23.41	23.53	23.88	23.95	24.86	23.82	25.16	23.53	23.53	25.19
				Modelled Flow (cumecs)	32.97	38.51	45.51	52.90	58.05	62.43	79.61	82.43	103.25	74.68	124.54	62.44	62.44	124.80

Model data taken from Manchester Ship Canal 2018

AEP - Annual Exceedence Probability

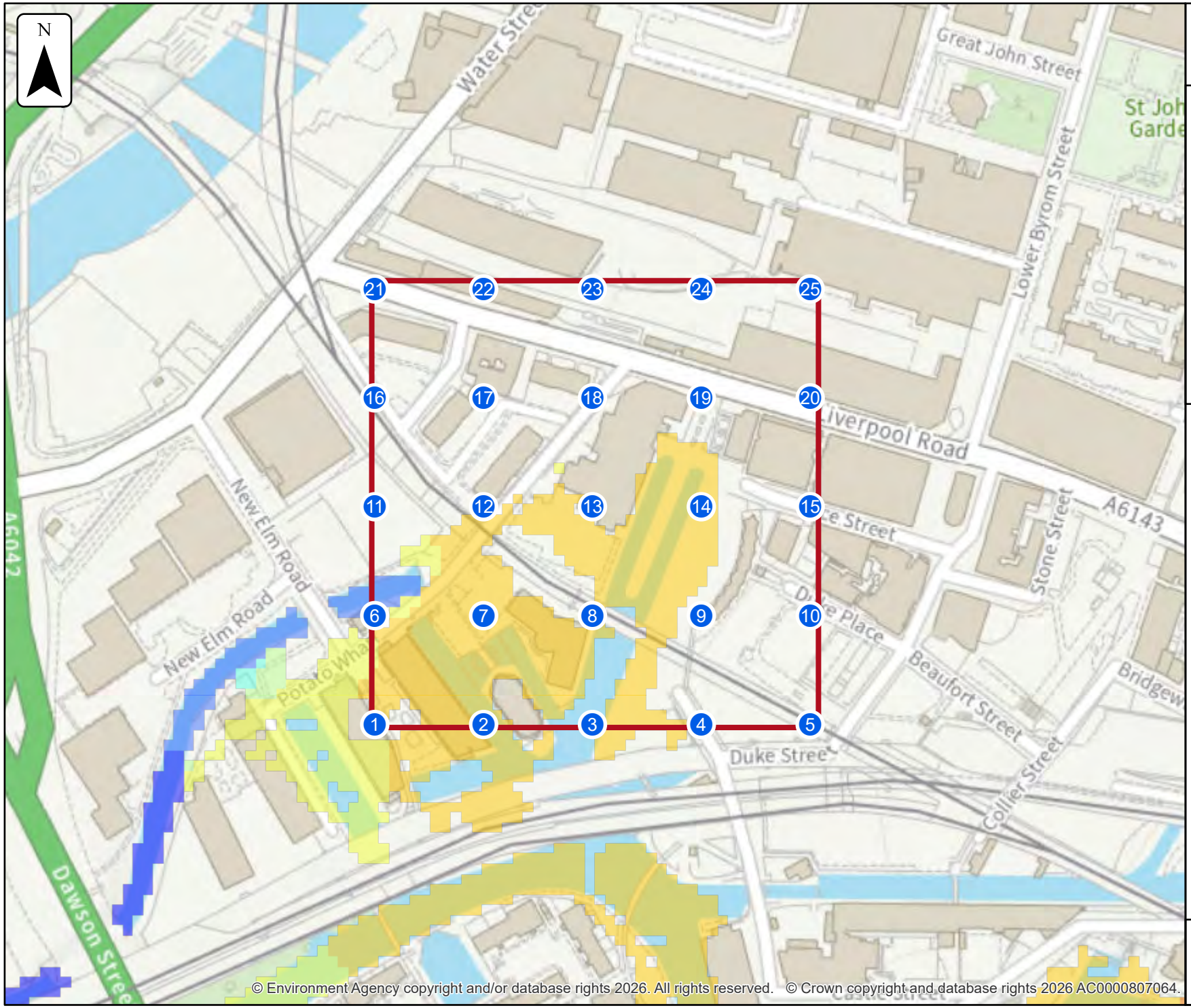
m aodN - metres above ordnance datum Newlyn

cumecs - cubic metres per second

Notes:

*Climate Change Scenario - 30%, 35% and 70% increases in flow calculated for the 2080's (2070 - 2115). Please see https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances for more information regarding the new climate change guidance. The location of the site and the type (vulnerability) of development determine the climate change allowances to consider in any flood risk assessment.

For the Manchester Ship Canal Model, we provide the following three scenarios:
1. Normal Operation: All sluice gates operate automatically to maintain a navigable pounded water level upstream of each set of sluice gates. During times of high flow the gates are opened automatically to allow excess water pass downstream. During extreme conditions the sluice gates can be manually overridden to extend the opening heights.
2. Latchford 1 Gate Closed Scenario: This scenario represents a single operational sluice gate at Latchford Locks fixed closed. Therefore, only operational movements from 2 active sluice gates.The model setup removes the gate from PID controller setup and an IED file is used to define the sluice gate as fixed in the closed position.
3. Latchford 3 Gates Closed Scenario: This scenario has been defined as the removal of operational rules at all three sluice gates at Latchford Locks, thus, all gates are fixed in the closed position resulting in no regulation of upstream water levels. The model setup removes each of the gates from PID controller setup and an IED file is used to define sluice gates fixed in the closed position.



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Environment Agency

No defences exist modelled fluvial extent and height

Location (easting/northing)
383032/397754

Scale
1:2,500

Created
3 Mar 2026

Model name
River Medlock 2011

Selected area

Main river

Modelled 2D grid
Water level in mAOD

- 24 - 24.375
- 24.375 - 24.75
- 24.75 - 25.125
- 25.125 - 25.5
- 25.5 - 25.875
- 25.875 - 26.25
- 26.25 - 26.625
- 26.625 - 27.0
- 27.0 - 27.375

This map shows the 0.1% AEP height data

0 25 50 75 100
metres

Sample point data

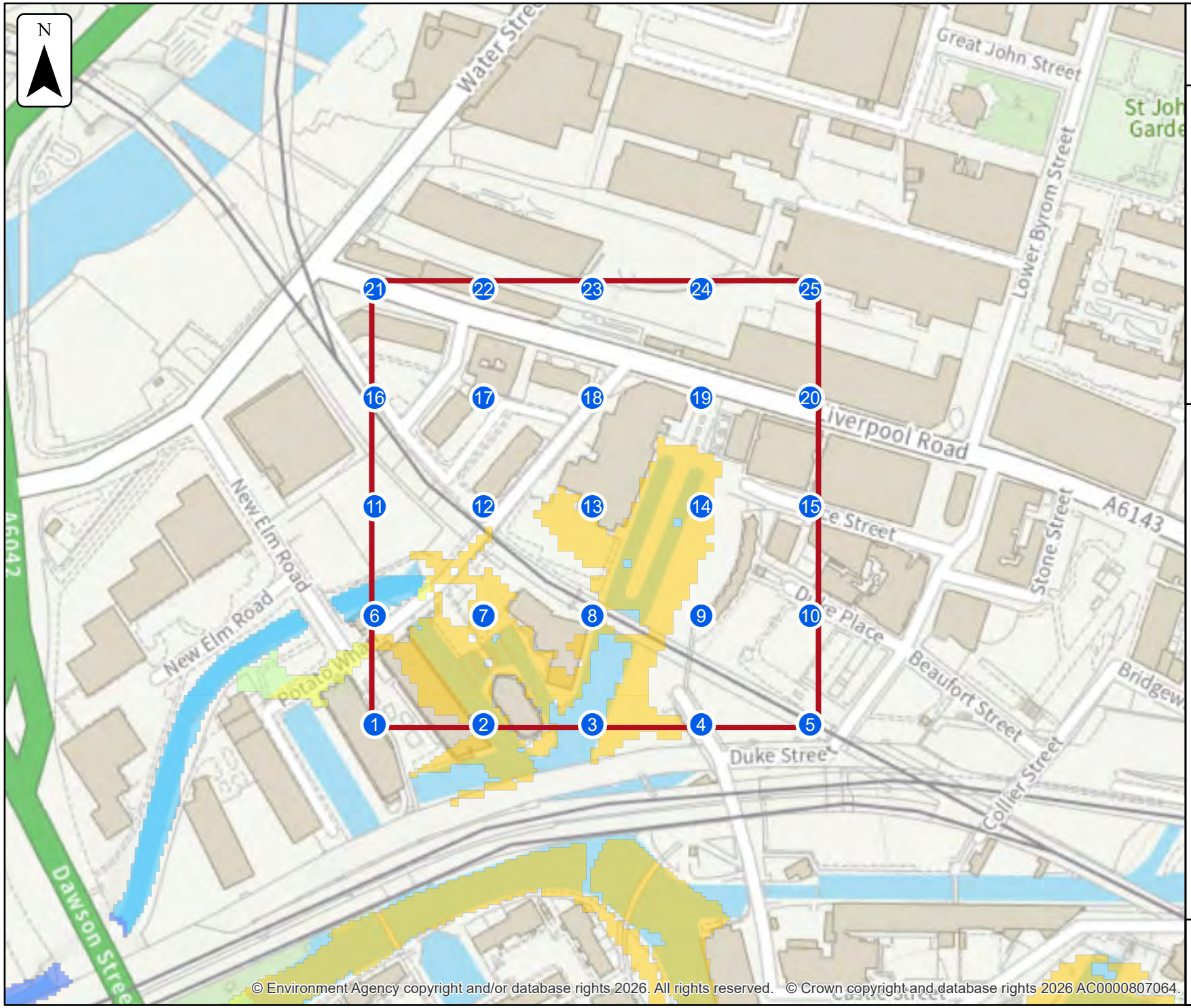
No defences exist

Label	Easting	Northing	4% AEP	1% AEP	0.1% AEP	4% AEP	1% AEP	0.1% AEP
			Height	Height	Height	Depth	Depth	Depth
1	382924	397647	NoData	NoData	NoData	NoData	NoData	NoData
2	382977	397647	25.52	25.69	26.34	1.48	1.65	2.29
3	383030	397647	NoData	NoData	NoData	NoData	NoData	NoData
4	383083	397647	NoData	NoData	NoData	NoData	NoData	NoData
5	383136	397647	NoData	NoData	NoData	NoData	NoData	NoData
6	382924	397700	24.12	24.19	24.69	0.13	0.13	0.17
7	382977	397700	NoData	NoData	26.36	NoData	NoData	0.53
8	383030	397700	NoData	NoData	NoData	NoData	NoData	NoData
9	383083	397700	NoData	NoData	NoData	NoData	NoData	NoData
10	383136	397700	NoData	NoData	NoData	NoData	NoData	NoData
11	382924	397753	NoData	NoData	NoData	NoData	NoData	NoData
12	382977	397753	NoData	NoData	26.31	NoData	NoData	0.02

Label	Easting	Northing	4% AEP	1% AEP	0.1% AEP	4% AEP	1% AEP	0.1% AEP
			Height	Height	Height	Depth	Depth	Depth
13	383030	397753	NoData	NoData	NoData	NoData	NoData	NoData
14	383083	397753	NoData	NoData	26.34	NoData	NoData	0.44
15	383136	397753	NoData	NoData	NoData	NoData	NoData	NoData
16	382924	397806	NoData	NoData	NoData	NoData	NoData	NoData
17	382977	397806	NoData	NoData	NoData	NoData	NoData	NoData
18	383030	397806	NoData	NoData	NoData	NoData	NoData	NoData
19	383083	397806	NoData	NoData	NoData	NoData	NoData	NoData
20	383136	397806	NoData	NoData	NoData	NoData	NoData	NoData
21	382924	397859	NoData	NoData	NoData	NoData	NoData	NoData
22	382977	397859	NoData	NoData	NoData	NoData	NoData	NoData
23	383030	397859	NoData	NoData	NoData	NoData	NoData	NoData
24	383083	397859	NoData	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	4% AEP	1% AEP	0.1% AEP	4% AEP	1% AEP	0.1% AEP
			Height	Height	Height	Depth	Depth	Depth
25	383136	397859	NoData	NoData	NoData	NoData	NoData	NoData
Max value in selected area:			25.52	25.69	26.36	3.56	3.63	3.35

Data in this table comes from the River Medlock 2011 model. Height values are shown in mAOD, and depth values are shown in metres.
Any blank cells show where a particular scenario has not been modelled for this location.
Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.
'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.



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Environment Agency

No defences exist climate change modelled fluvial extent and height

Location (easting/northing)
383032/397754

Scale
1:2,500

Created
3 Mar 2026

Model name
River Medlock 2011

Selected area

Main river

Modelled 2D grid
Water level in mAOD

- 23 - 23.5
- 23.5 - 24.0
- 24.0 - 24.5
- 24.5 - 25.0
- 25.0 - 25.5
- 25.5 - 26.0
- 26.0 - 26.5
- 26.5 - 27.0
- 27.0 - 27.5

This map shows the
1% AEP +70% height data

0 25 50 75 100
metres

Sample point data

No defences exist climate change

Label	Easting	Northing	1% AEP (+20%)	1% AEP (+35%)	1% AEP (+70%)	1% AEP (+20%)	1% AEP (+35%)	1% AEP (+70%)
			Height	Height	Height	Depth	Depth	Depth
1	382924	397647	NoData	NoData	NoData	NoData	NoData	NoData
2	382977	397647	25.82	25.91	26.15	1.77	1.37	1.62
3	383030	397647	NoData	NoData	NoData	NoData	NoData	NoData
4	383083	397647	NoData	NoData	NoData	NoData	NoData	NoData
5	383136	397647	NoData	NoData	NoData	NoData	NoData	NoData
6	382924	397700	24.24	NoData	NoData	0.14	NoData	NoData
7	382977	397700	25.82	NoData	26.15	0.02	NoData	0.24
8	383030	397700	NoData	NoData	NoData	NoData	NoData	NoData
9	383083	397700	NoData	NoData	NoData	NoData	NoData	NoData
10	383136	397700	NoData	NoData	NoData	NoData	NoData	NoData
11	382924	397753	NoData	NoData	NoData	NoData	NoData	NoData
12	382977	397753	NoData	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	1% AEP (+20%)	1% AEP (+35%)	1% AEP (+70%)	1% AEP (+20%)	1% AEP (+35%)	1% AEP (+70%)
			Height	Height	Height	Depth	Depth	Depth
13	383030	397753	NoData	NoData	NoData	NoData	NoData	NoData
14	383083	397753	NoData	NoData	26.15	NoData	NoData	0.33
15	383136	397753	NoData	NoData	NoData	NoData	NoData	NoData
16	382924	397806	NoData	NoData	NoData	NoData	NoData	NoData
17	382977	397806	NoData	NoData	NoData	NoData	NoData	NoData
18	383030	397806	NoData	NoData	NoData	NoData	NoData	NoData
19	383083	397806	NoData	NoData	NoData	NoData	NoData	NoData
20	383136	397806	NoData	NoData	NoData	NoData	NoData	NoData
21	382924	397859	NoData	NoData	NoData	NoData	NoData	NoData
22	382977	397859	NoData	NoData	NoData	NoData	NoData	NoData
23	383030	397859	NoData	NoData	NoData	NoData	NoData	NoData
24	383083	397859	NoData	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	1% AEP (+20%)	1% AEP (+35%)	1% AEP (+70%)	1% AEP (+20%)	1% AEP (+35%)	1% AEP (+70%)
			Height	Height	Height	Depth	Depth	Depth
25	383136	397859	NoData	NoData	NoData	NoData	NoData	NoData
Max value in selected area:			25.84	26.02	26.32	2.89	4.07	4.15

Data in this table comes from the River Medlock 2011 model. Height values are shown in mAOD, and depth values are shown in metres.
Any blank cells show where a particular scenario has not been modelled for this location.
Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.
'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.

Strategic flood risk assessments

We recommend that you check the relevant local authority's strategic flood risk assessment (SFRA) as part of your work to prepare a site specific flood risk assessment.

This should give you information about:

- the potential impacts of climate change in this catchment
- areas defined as functional floodplain
- flooding from other sources, such as surface water, ground water and reservoirs

Your Lead Local Flood Authority is Manchester District.

About this data

This data has been generated by strategic scale flood models and is not intended for use at the individual property scale. If you're intending to use this data as part of a flood risk assessment, please include an appropriate modelling tolerance as part of your assessment. The Environment Agency regularly updates its modelling. We recommend that you check the data provided is the most recent, before submitting your flood risk assessment.

Flood risk activity permits

Under the Environmental Permitting (England and Wales) Regulations 2016 some developments may require an environmental permit for flood risk activities from the Environment Agency. This includes any permanent or temporary works that are in, over, under, or nearby a designated main river or flood defence structure.

Find out more about flood risk activity permits

Help and advice

Contact the Greater Manchester Merseyside and Cheshire Environment Agency team at inforequests.gmmc@environment-agency.gov.uk for:

- more information about getting a product 5, 6, 7 or 8
- general help and advice about the site you're requesting data for

Appendix E – Historical Building Plans

Rev B 21/3/90 - Water meter chamber added; lighting columns and tree pits added to viewing platform

Rev C 10/4/90 - lighting columns amended

CHARTERED ARCHITECTS
TOWN PLANNERS
INTERIOR DESIGNERS
4/6 St.Johns North. WAKEFIELD WF1 3QA
Tel. 0924 370404
Fax. 0924 372630
DAVID LYONS AND ASSOCIATES

Client

Project Y.M.C.A HOSTEL LIVERPOOL ROAD MANCHESTER

Title EXTERNAL WORKS AND FINISHED LEVELS PLAN (REVISED)

Scale 1/100 Date 2nd June 1989 Drwg.No. 8747/233 Rev. B C

Rev A 13.2.90. PLANTING DETAILS ADDED. POSITIONS OF BOLLARDS AND TREE GRILLES SHOWN. SMALL PLANTED AREAS CHANGED TO CONCRETE BLOCK PAVING.

ALL LEVELS ARE RELATIVE TO O.S.B.M ON THE INDUSTRIAL AND RAILWAY MUSEUM VALUE 30.514m

SEE AMENDED DRAINAGE & NEW CAR PARK LAYOUT DRWG NO 9059/101

DEMARCATION BETWEEN SPEC.A SERVICE ACCESS CONSTRUCTION AND SPEC.B CAR PARK SURFACING - 150 x 150mm SQUARE PRE-CAST CONCRETE CHANNEL BLOCK, BEDDED AND HAUNCHED IN 150mm THICK x 450mm WIDE CONCRETE. BED (CLASS 10/20 CONC) DRAINAGE SUB-BASE TO BE CARRIED THROUGH UNDERNEATH CONC. BED.

CONSTRUCT NEW VEHICULAR CROSSOVER TO HIGHWAYS AUTHORITY SPECIFICATION - PROTECT OR DIVERT ANY EXISTING SERVICES IN FOOTWAY (CHECK WITH STATUTORY SERVICES AUTHORITIES)

1 NO ACER
5 NO PRUNUS LUSITANICA
15 NO HEDERA

EXISTING RETAINING WALL

POTATO WHARF

Posts

SERVICE ACCESS

CAR PARKING SPEC. B

SPEC. A

SPEC. B

FOR DETAILS OF THE BRICKWORK PANEL WALLS AND COPING TO THE TOP LEVEL OF THIS RETAINING WALL SEE ARCHITECTS DRWG NO 8747/356

FOR CONSTRUCTION DETAILS OF THE REINFORCED CONC. RETAINING WALL SEE CONSULTING STRUCTURAL ENGINEERS DRAWINGS

EXISTING TELEGRAPH POLE TO BE RETAINED AS AGREED WITH THE STATUTORY AUTHORITY.

Tarmac

VEHICLE HARDSTANDINGS :-

SPEC. A

SERVICE ACCESS SPECIFICATION (FOR DRAY VEHICLES)

Wearing Course:) Single Course - 60mm thickness rolled asphalt with 20mm coated chippings to BS594.
Base Course:)

Road Base: 90mm thick 40mm n/s dense roadbase macadam to BS 4987.

Sub-Base: 300mm thick DOT Type 1 granular material spread (Assuming 3.2% CBR) spread uniformly in layers not exceeding 150mm depth and each layer compacted and rolled.

O/A Thickness = 450mm

SPEC. B

CAR PARKING AREAS ONLY

Wearing Course: 25mm thick of 6mm n/s bitumen macadam to DLA Engineer's Specification.

Base Course: 50mm of 20mm n/s dense bitumen macadam to BS 4987.

Sub-Base: 225mm of DOT Type 1 granular material spread uniformly in layers not exceeding 150mm depth and each layer compacted and rolled.

O/A Thickness = 300mm

CONCRETE BLOCK PAVING 200mm (80") x 65 LAID TO FALLS AND BEDDED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

ALL KERBS TO BE PRE-CAST CONCRETE, HALF BATTERED SIZE 255 x 125 TO B.S. 340 SET ON MIN 150mm THICK CONCRETE BED AND HAUNCHED CLASS 10/20 CONC.

SEE DRWG 8747/328 FOR KERBING DETAILS.

PCC KERB QUADRANTS AT ALL EXTERNAL 90° CORNERS.

LWR GRND FLR F.F.L. 25.750

GRND FLR F.F.L. 29.725

PROTECTION TO DRAINAGE PIPES :-
PIPES WITH LESS THAN 1200mm COVER UNDER ROADS AND VEHICULAR AREAS OR 900mm UNDER FOOTWAYS) SHALL BE SURROUNDED WITH 150mm THICK CONCRETE. FLEXIBILITY TO BE RETAINED BY INSERTING 18mm THICK COMPRESSIBLE BOARDS PRE-CUT TO THE PIPE DIAMETER, THROUGH THE FULL CROSS SECTIONAL AREA OF THE CONCRETE SURROUND EVERY 5.0M (MAX) DISTANCE AT A FLEXIBLE JOINT IN THE PIPELINE.
PIPES PASSING UNDER BUILDINGS SHALL BE BEDDED ON AND SURROUNDED IN GRANULAR MATERIAL (100mm TOP AND BOTTOM WITH 150mm SIDES) WHERE THE TOP OF THE PIPE IS WITHIN 300mm OF THE UNDERSIDE OF THE CONCRETE SLAB, THE PIPE SHALL BE SURROUNDED IN CONCRETE.
WHERE A PIPE ENTERS A BUILDING, CONNECTS WITH A WALL, MANHOLE OR OTHER STRUCTURE, A FLEXIBLE JOINT SHALL BE PROVIDED AT 150mm DISTANCE EITHERSIDE IN THE PIPELINE, TOGETHER WITH 600mm LENGTH OF RIGIDAGE PIPE.

NEW MANHOLES :
ALL MANHOLES TO BE CONSTRUCTED IN EITHER BRICK OR PRE-CAST CONCRETE RING CONSTRUCTION - FOR DETAILS SEE, MANHOLE SCHEDULE DRWG NO 8747/231 AND STANDARD MANHOLE DETAILS DRWG 8747/211.
ALL MANHOLE COVERS AND FRAMES MUST BE SET SQUARE TO THE BUILDING.
IN ROADS LOADING OR PARKING AREAS, MANHOLE COVERS SHALL BE HEAVY DUTY TRIANGULAR CAST OR DUCTILE IRON TO BS 497 REF HA-60 WITH 600x600 SQUARE CLEAR OPENING
IN PEDESTRIAN AREAS ONLY, MANHOLE COVERS TO BE MEDIUM DUTY RECESSED CAST IRON TO BS 497 REF MB2R-600G
MANHOLE COVERS IN CANAL SIDE PAVING SHALL BE HEAVY DUTY RECESSED CAST IRON TO BS 497 - 600x600 SQ CLOSE OPENING - LIST NOS 6234 OR 5244 (SINGLE SEAL COVERS TO S.W SEWERS - DOUBLE SEAL TO FOUL SEWERS)
FOR CLARIFICATION SEE MANHOLE SCHEDULE.

GULLIES TO SERVICE ACCESS AND CAR PARKS :
ALL GULLEY CHAMBERS AND FRAMES TO BE GUNNEBO BROOKHOUSE 'VICTORIA' HEAVY DUTY DUCTILE IRON WITH CAPTIVE HINGE, HEADS RATING - TO BS 497, BS REF GA 2450 LIST NO 5801 M
ROAD GULLIES SHALL BE CLAYMORE TO BS 5539 OR P.C. CONC TO BS 5556 SIZE 600 x 375 ø TO BE TRAPPED WITH 150ø OUTLET AND RODDABLE CONNECTION WITH STOPPER, AND CHAIN.
FOR INSTALLATION DETAIL, SEE DRWG NO 8747/213.
IN PEDESTRIAN AREAS ADJACENT LIVERPOOL ROAD GULLEY DETAILS DIFFER, AND SEPERATE REFERENCE TO THIS INDIVIDUAL DRWG APPLY.

RODDING POINTS :
IN FOOTWAY RODDING EYE TO BE FINISHED WITH NAYLOR CAST IRON SERUNIA PLATE AND FRAME SIZE 225 x 225 TH SQUARE AT PAVING LEVEL - SEE DETAIL ON DRWG 8747/213.
IN SERVICE YARD AT RODDING POINT S12 - SHALL BE FITTED WITH GUNNEBO BROOKHOUSE 'VALIANT' DUCTILE IRON SLIDE OUT HEAVY DUTY COVER & FRAME TO BS 497 SIZE 450 x 450 mm SQUARE CLEAR OPENING LIST NO 5180 - SET ON CONC SURROUND TO PIPE SOCKET TERMINAL (WITH STRIKER)
RODDING ACCESS TO LAND DRAINS IN RETAINING WALL TO BE FITTED WITH VAREY ACCESS COVER TYPE REF. W&B 60R CAST IN SITU IN CONCRETE BLOCK TO BE BUILT INTO BRICK FACING SKIN - SEE DETAIL DRWG NO 8747/220

NEW SEWERS
ALL NEW SEWERS TO BE CONSTRUCTED IN THE CANAL SIDE HARD PAVING AREAS AND OUTFALLING TO THE LOCAL AUTHORITY ADOPTED SEWER AT EXISTING MANHOLE C1 MUST BE OF AN ACCEPTABLE STANDARD - I.E. TO COMPLY WITH THE CITY ENGINEER & SURVEYOR'S SPECIFICATION FOR SEWER WORKS.

EXISTING MANHOLES, INSPECTION CHAMBERS, GULLIES AND DRAINS :-
WHERE NOT EXCAVATED AND REMOVED DURING THE GENERAL SITE BREAKER LEVEL DIG, THEY MUST BE INVESTIGATED, IF NOT LIVE, MUST BE SEALED OFF.
THE ABANDONED MANHOLE SHAFTS TO BE BROKEN DOWN TO A LEVEL 1 METRE BELOW FINISHED GROUND / FLOOR LEVEL AND THE REMAINING VOID FILLED WITH WELL COMPACTED HARDCORE OR WITH LEAN MIX CONCRETE. ALTERNATIVELY BREAK OUT COMPLETELY ABANDONED EXISTING DRAINS / SEWER RUNS TO BE CAPPED OFF USING A CONCRETE FLOW CLASS 20/20 CONCRETE. THE PIPE TO BE GROUTED UP PROGRESSIVELY FILLING ALL VOIDS COMPLETELY WITH CLASS A GROUT. 1 PART CEMENT TO 2 PARTS P.F.A.
D.L.A. ENGINEERS TO BE INFORMED OF ANY LIVE SEWERS / DRAINS THAT MAY REQUIRE DIVERSION OR RE-CONNECTION.

SECOND HAND QUALITY YORKSTONE PAVING SLABS (RANDOM SIZES) LAID TO FALLS ON 15 CEMENT MORTAR BARS ON MIN 25 mm THICK COMPACTED SAND BED ON MIN 100 THICK WELL COMPACTED HARDCORE BASE.

SECOND HAND YORKSTONE PAVING LAID TO FALLS

CHARCON CHANNEL BLOCK

DEMARCATION BLOCK

RAMP DOWN

NEW RADIUS KERB TO BE FIXED (TO BE AGREED BY HIGHWAYS DEPT.)

TELEGRAPH POLE TO BE REMOVED

FOR DETAILS OF THIS PROMENADE AREA SEE DRWG NO 8747/232

SEE FURTHER DETAILS OF ENTRANCE STEPS ON GROUNDWORKS TRUST DWG - TO BE CONSTRUCTED BY SEPARATE CONTRACT

PAVING AND PLANTING BY OTHERS

PAVING AND PLANTING BY OTHERS

CANAL WATER LEVEL 25.24 metres

CANAL WATER LEVEL 25.24 metres

NOTES :-

1) THE HARDSTANDINGS SPECIFICATIONS SHOWN ON THIS DRAWING ARE DESIGNED TO SUIT THE SITE CONDITIONS AND ANTICIPATED VEHICLE DELIVERIES AND THUS SUPERCEDE THE EARLIER SURFACING DETAILS GIVEN ON DRWG 8747/328
2) FOR KERBING AND PAVING DETAILS, REFER TO DRWG 8747/328
3) FOR PLANTING SCHEME REFER TO EXTERNAL WORKS PLANTING DRWG NO 8747/330 FOR SCHEDULE AND GENERAL NOTES
4) THE FINISHED LEVELS SHOWN ON THIS DRAWING SUPERCEDE THOSE SHOWN ON DRWG 8747/355
5) DRAINAGE FALLS AND GULLEY POSITIONS HAVE BY NECESSITY BEEN REVISED AND THEREFORE THIS DRAWING SUPERCEDES ALL PREVIOUS GULLEY POSITIONS SHOWN ON SUPERCEDED DRWG NO 8747/210
6) FOR FULL DRAINAGE LAYOUT DETAILS SEE DRWGS NOS 8747/220, 221 AND 231.

25.700 — PROPOSED FINISHED LEVELS
28.635 E — EXISTING OR ORIGINAL GROUND LEVELS
TX 25.680 — TOP OF KERB LEVEL

PLANTING

EXTRA HEAVY TREES: 16-18cm GIRTH - TO B.S. 5236 - TO BE LIFTED AND ROOTBALLED AND THEN PLUNGED IN NURSERY PRIOR TO END OF MARCH 90.
THE FOLLOWING TREES ARE AVAILABLE FROM J.A. JONES AND SONS, CHURCHTOWN, SOUTHPORT, TEL NO 0704 29235.
2 NO CARPINUS BETULUS 'FASTIGIATA'
2 NO ACER PLATANOIDES

SHRUB PLANTING
TO CONSIST OF THE FOLLOWING :
10 NO PRUNUS LUSITANICA - 120 - 150cm HIGH IN 25 L POTS -
25 NO HEDERA HELIX 'HIBERNICA' IN 2 L POTS.
SHRUBS AVAILABLE FROM J.A. JONES LTD AS ABOVE

PLANTING PITS FOR TREES
TO BE 1.5 x 1.5 mm. BOTTOM OF PIT TO BE WELL BROKEN. GROWING MEDIUM TO CONSIST OF IMPORTED TOPSOIL WITH 1 NO 2 L BAG PSOM / P.F.C. BACKFILLING CARRIED OUT IN FIRMLY CONSOLIDATED LAYERS.
BOLUM OF EXCAVATION WORKED INTO TOP LAYER. BEFORE APPLICATION OF TOP LAYER PIT TO BE SOAKED TO FIELD CAPACITY. TREES IN GRILLES TO BE IN POSITION AS GIVEN. OTHERS TO BE DOUBLE STAKED.

BACK INLET GULLIES (DRAINING PAVEMENT AREA)
HEPWORTHS SUPERSLEEVE CODE 150A ROD GABLE ACCESS GULLEY WITH INTEGRAL BACK INLET FOR 102 x 102 SQ ALUMINIUM DOWNPIPE. THE GULLEY TO BE SET 50mm BELOW FINISHED PAVING LEVEL AND TO BE FITTED WITH NAYLOR TYPE, HINGED LOCKING GRATE & FRAME, SQUARE PATTERN SIZE 305 x 305 mm. THE OPENING TO BE DOWED INTO THE TOP OF THE GULLEY WITH 1:3 CEMENT MORTAR.

SHRUB PLANTING AREAS TO HAVE 600mm DEPTH TOPSOIL WITH SUBSOIL WELL BROKEN. TOPSOIL TO HAVE 100 mm EVEN TREE AND SHRUB PLANTING FOR POTTING LIFTED INTO SOIL WITH 50 GMS PER M2 OF ENMAG. AREA TO BE SOAKED FOLLOWING PLANTING. MULCH WITH 50mm OF COMPOST.

EXISTING CARRIAGEWAY TO BE MADE UP TO FOOTWAY LEVEL AND REARRIVED - (THE PAINTED KERB TO BE REPLACED BY NEW FULL KERB)

MAINTENANCE
TO LAST 12 MONTHS. ENSURE THAT TREES AND SHRUBS ARE WATERED ADEQUATELY PARTICULARLY FIRST 2-3 MONTHS FOLLOWING PLANTING. KEEP ALL PLANTED AREAS WEED FREE.
AT THE END OF 12 MONTH PERIOD OR WHEN APPROPRIATE ALL DEAD OR DEFECTIVE PLANT MATERIAL TO BE REPLACED AT NO EXTRA CHARGE.

STREET FURNITURE

B ø 6 NO CAST IRON BOLLARDS AS PER BILL

T — 2 NO CAST IRON TREE GRILLES BY BROOKS AND DOWNS LTD MANCHESTER. TO BE BLANK STATE 1800 x 1800 mm. SUPPLIED WITH ANTI FRAME.

4 No lighting columns - see S.P.A. drawing No M500/101

4 No tree pits, grilles and trees by separate contract

LIVE

Paved

Concrete

FHO

Tarmac

Rg

Lc

Sv

T

Tp

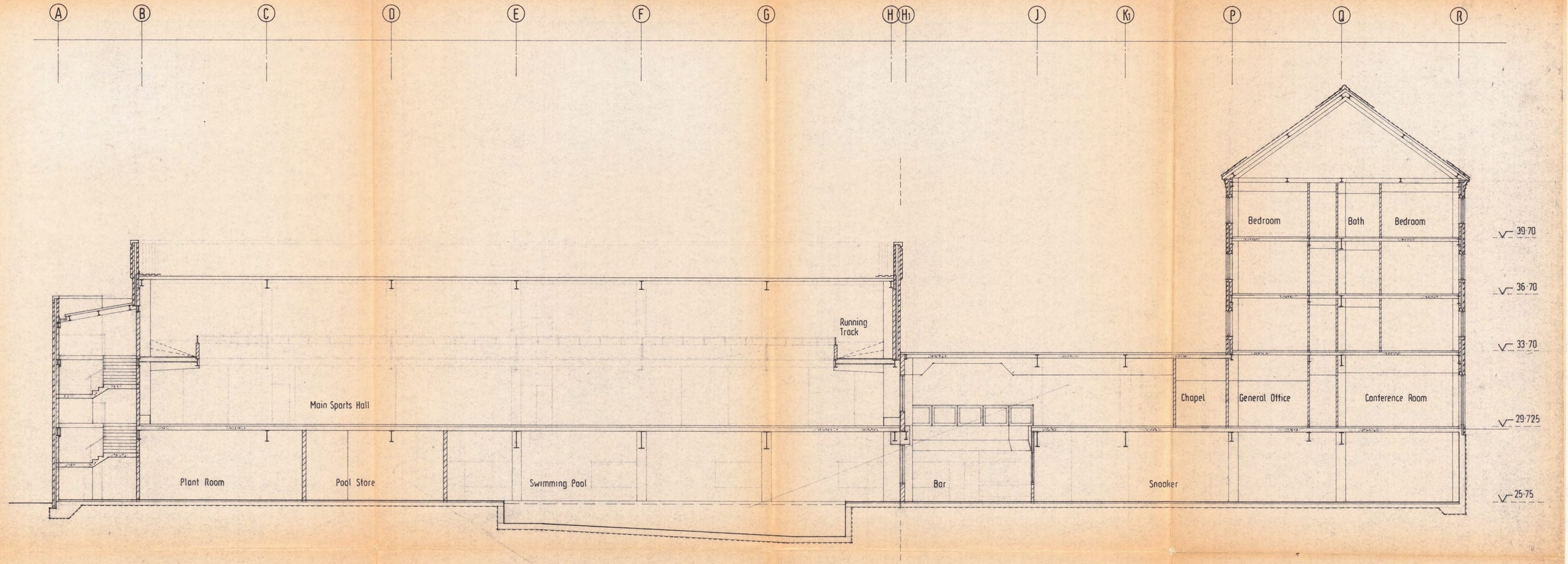
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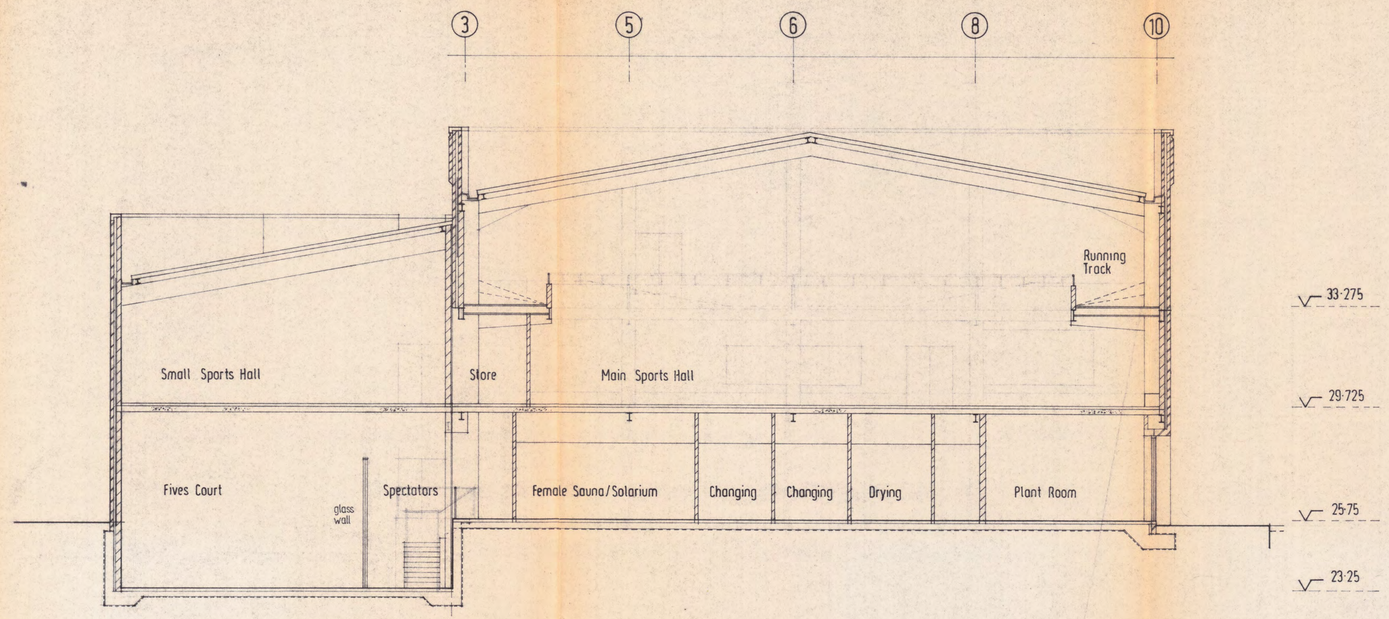
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MHCL 25.771E

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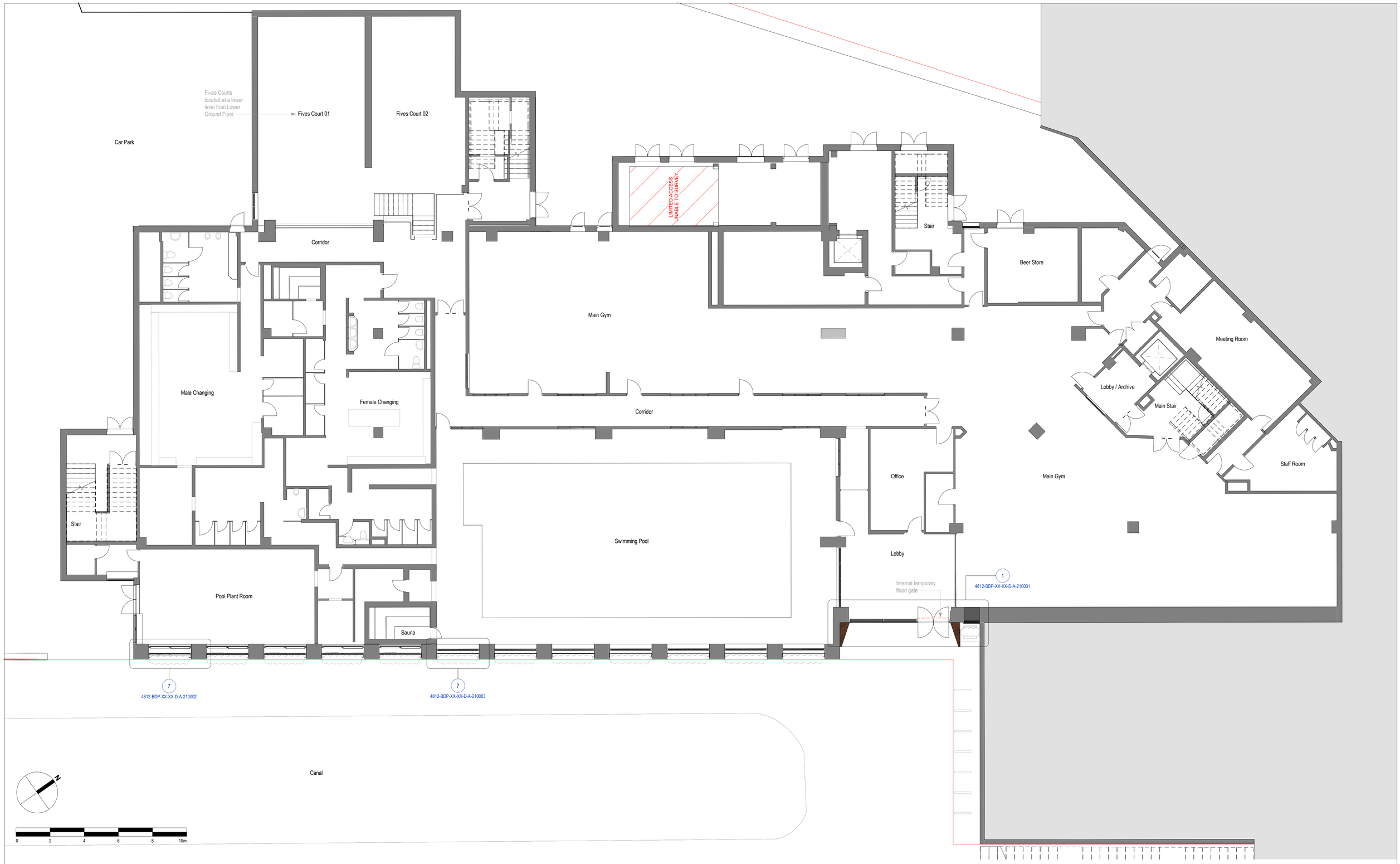
For L. BROWN & SONS LTD.
DIRECTOR
14/3/89.

B 9·6·88 Amended to suit plans
REVISION 'A' 19·4·88 Fives Court floor level amended

CHARTERED ARCHITECTS
TOWN PLANNERS
INTERIOR DESIGNERS
D:A
4/6 St. John's North, WAKEFIELD WF1 3QA
Tel: (0924) 370404
Telex: 556412
DAVID LYONS and ASSOCIATES

PROJECT	TITLE
YMCA CASTLEFIELD	SECTIONS
SCALE 1:100	DATE 7·4·88
DRAWN BY	DRWG NO 8747 / 113 B

Appendix F – Proposed Mitigation Measures



BUILDING DESIGN PARTNERSHIP SHALL HAVE NO RESPONSIBILITY FOR ANY USE MADE OF THIS DOCUMENT OTHER THAN FOR THAT WHICH IT WAS PREPARED AND ISSUED.

ALL DIMENSIONS SHOULD BE CHECKED ON SITE.

DO NOT SCALE FROM THIS DRAWING

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DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING BEFORE WORK COMMENCES:
- THE CDM DESIGN ISSUES REGISTER
- THE BDP RISK SERIES OF DRAWINGS
- THE PROJECT CDM RISK REGISTER

NOTES

All existing information based off survey information received by Ridge in July 2025.

Referenced: 5029483-RDG-XX-XX-M-GS-990000-P01-Revit Model

All dimensions to be checked on site by specialist subcontractor with suitable tolerances allowed prior to manufacture.
Any discrepancy to be reported to Main Contractor and Architect.

REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
P02	Issue for Planning	GB	AC	07/05/26
P01	First Issue	GB	AC	01/05/26

KEYPLAN



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BDP.

PROJECT TITLE
YMCA - Manchester

BDP JOB NUMBER
P3004812

DRAWING TITLE
Lower Ground Floor GA-Proposed

SCALE
@ A1
1 : 100

DATE FIRST ISSUED
01/05/26

DRAWING NO.
4812-BDP-XX-00-D-A-000017

REVISION
P02

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Proposed Interventions

Materials Key

1. Flood resilient glazed curtain wall system
2. Glazed metal framed entrance doors
3. Entrance Sign - illuminated
4. Entrance Canopy - bronze metal surround
5. Engineering brick dwarf wall with bronze metal faced planter
6. Metal framed window system with fritted glass
7. Metal louvres with perforated metal screen
8. Stainless steel bike hoops
9. Insulated glass faced spandrel panel
10. Engineering brick dwarf wall



P02 Planter and window added to align with drawing 210001

Canal side Elevation | Y Club LG Entrance | Y Club UG Entrance | YMCA Hotel

0 2 4 6 8 10m

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NOTES

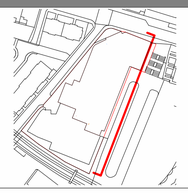
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REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
P02	Issue for Planning	GB	SG	05/05/26
P01	First Issue	GB	SG	01/05/26

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PROJECT TITLE
YMCA - Manchester

BDP JOB NUMBER
P3004812

DRAWING TITLE
East Elevation - Proposed

SCALE
As indicated @ A1

DATE FIRST ISSUED
01/05/26

DRAWING No.
4812-BDP-XX-XX-D-A-001016

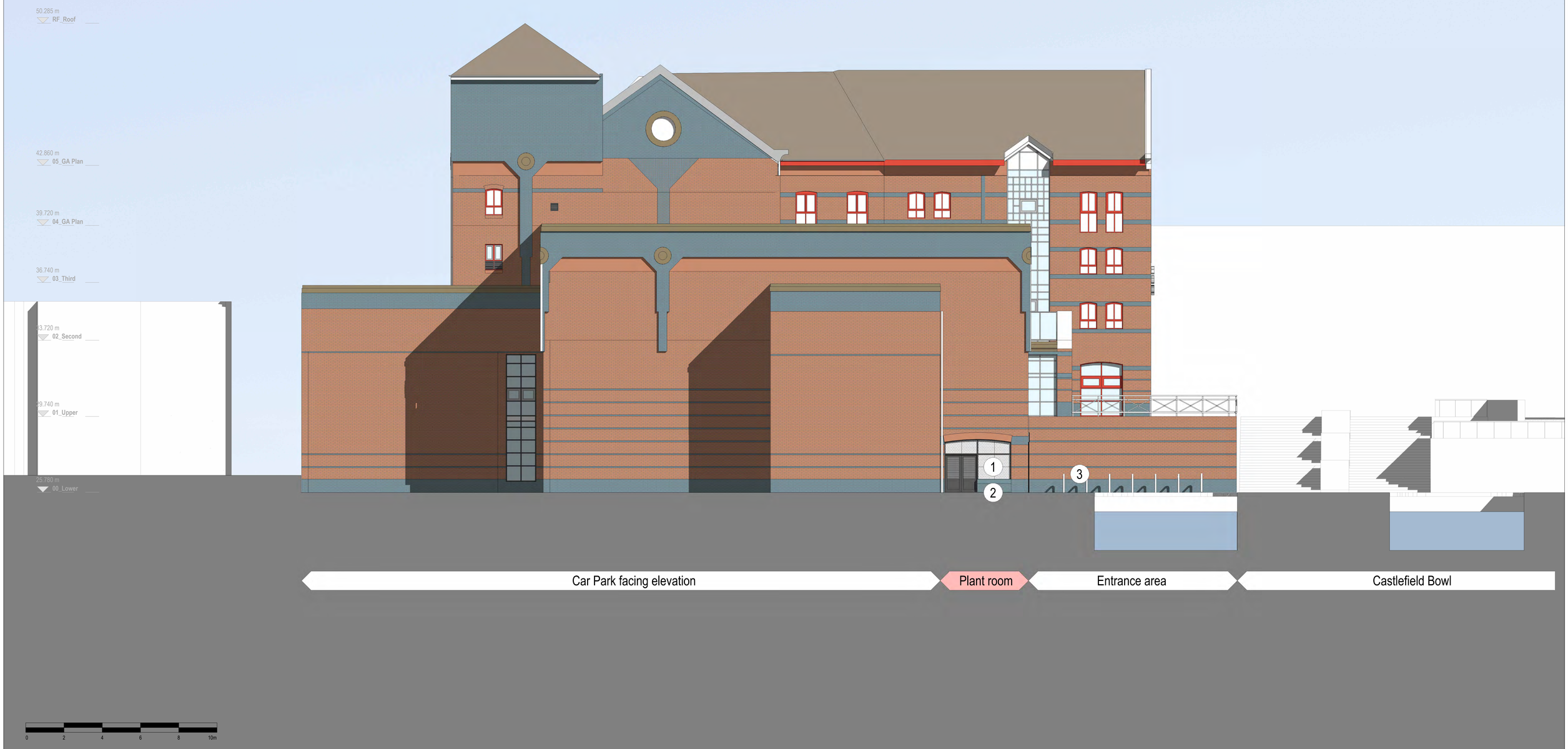
REVISION
P02

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Proposed Interventions

Materials Key

1. Perforated Metal Screen with steel flood proof doors (louvres towards top)
2. Engineering brick dwarf wall
3. Stainless steel bike hoops



Car Park facing elevation | Plant room | Entrance area | Castlefield Bowl

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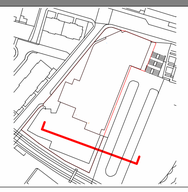
All existing information based off survey information received by Ridge in July 2025.

Referenced: 5029483-RDG-XX-XX-M-GS-990000-P01-Revit Model

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REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
P01	First Issue	GB	SG	01/05/26

KEYPLAN



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PROJECT TITLE: YMCA - Manchester

BDP JOB NUMBER: P3004812

DRAWING TITLE: South Elevation - Proposed

SCALE: As indicated @ A1

DATE FIRST ISSUED: 01/05/26

DRAWING No.: 4812-BDP-XX-XX-D-A-001017

REVISION: P01

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