RWO Civil Structures Geoenvironmental

Proposed Data Centre Development

Bower Street, Manchester



Flood Risk Assessment and Drainage Strategy

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CONFIDENTIALITY STATEMENT

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LATOS

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Findings and conclusions presented in this report may be subject to revision should the underlying data be amended or updated following the date of consultation.

DOCUMENT HISTORY

VERSION	PURPOSE/DESCRIPTION	DATE
1	First Issue	18.03.2026

1.0 EXECUTIVE SUMMARY

FLOOD RISK ASSESSMENT SUMMARY – PROPOSED DEVELOPMENT

This assessment considers the flood risk implications of the proposed development and concludes that all published flood risks are low and/or manageable. The development site is located within Flood Zone 1, indicating a low probability of flooding from rivers or the sea. The developable area covers approximately 1.22 hectares.

ASSESSED FLOOD RISKS

Based on publicly available data and third-party professional reports, the following flood risks have been evaluated:

- ***Pluvial Flooding*** – Low/Manageable
- ***Groundwater Flooding*** – Low
- ***Flooding from Sewers*** – Low
- ***Flooding from Reservoirs, Canals, and Other Artificial Sources*** – Low

SURFACE WATER MANAGEMENT STRATEGY

To prevent increased flood risk to third-party land, the proposed drainage system will be designed in accordance with Ofwat requirements, ensuring:

- No pipe surcharge during a 1 in 2-year rainfall event
- No surface flooding in a 1 in 30-year rainfall event
- No flooding of buildings or adjacent properties in a 1 in 100-year event, including a 40% allowance for climate change

Any excess flood water from the 100-year + climate change event will be stored on site to prevent overland flow to surrounding land.

Design and construction of the surface water drainage system will follow national guidance, good practice.

DRAINAGE AND DISCHARGE STRATEGY

As infiltration is not viable on site, surface water will discharge into the existing watercourse, Rochdale Canal, on the site.

- Use of Surface water attenuation will be required and treatment
- Discharge restricted to the existing greenfield runoff rate (Qbar) of 8.7 litres/second
- On-site attenuation provided for all events up to and including the 1 in 100-year + 400% climate change scenario.

By limiting the discharge rate, the development will not increase flood risk downstream, instead improving the catchment by capturing, controlling, and conveying flows at a regulated rate, in compliance with local and National Design Standards.

WATER QUALITY AND SOURCE CONTROL

Pollution control will be addressed through the following source control measures:

- **Permeable paving** on carparking spaces.
- **Downstream Defender** to provide additional treatment.

FOUL WATER STRATEGY

Foul water from the development will discharge, without restriction, into the existing public foul sewer system, subject to approval by United Utilities.

CONSTRUCTION PHASE DRAINAGE

To manage surface water during construction:

- Interceptor drains will be installed to manage overland flows during construction.

MAINTENANCE STRATEGY

A detailed maintenance regime and strategy will be prepared, specifying the inspection and maintenance requirements for SuDS infrastructure. A management company, appointed on behalf of the developer, will be responsible for long-term maintenance.

2.0 INTRODUCTION

RWO Associates (RWO) has been appointed by Latos to prepare a Flood Risk Assessment (FRA) and Drainage Strategy in support of an outline planning application for a proposed development at Bowers Street, Manchester. The development proposal comprises a developable area of 1.28Ha.

A location plan is provided in Figure 1, and the Masterplan Layout is included in Appendix A.

The purpose of this report is to assist in assessing the proposed development in line with the requirements of the National Planning Policy Framework (NPPF), published by the Ministry of Housing, Communities and Local Government. The report provides:

- An assessment of all relevant sources of flood risk,
- Identification of appropriate mitigation measures, and
- A comprehensive drainage strategy for the management of surface water and foul water, ensuring compliance with both national and local planning policy.

COMPLIANCE AND SCOPE

The scope of this Flood Risk Assessment and Drainage Strategy has been developed with reference to:

- Relevant national and local planning policies,
- Technical guidance and standards, and
- Consultation responses from statutory and non-statutory stakeholders, where applicable.

The strategy aims to ensure that flood risk is appropriately mitigated and that both surface and foul water drainage are managed sustainably over the lifetime of the development.

PLANNING POLICY & GUIDANCE DOCUMENTS

The following documents and resources have been reviewed and used to inform the assessment:

- National Planning Policy Framework and Planning Practice Guidance
- Flood and Water Management Act
- Defra Non-Statutory Technical Standards for Sustainable Drainage Systems
- Sustainable Drainage Systems Written Statement HCWS161
- Northeast Sustainable Drainage (SuDS) Local Standards
- Environment Agency Flood Risk Maps
- Local Government Flood Maps
- CIRIA SuDS Manual C753

3.0 DEVELOPMENT SITE AND LOCATION

The proposed development site comprises an irregularly shaped parcel of land intended for Data Centre Development use and is brownfield in nature. The total site area is approximately 1.28 hectares.

The site is located at Ordnance Survey Grid Reference 387073, 400185.

The surrounding land uses are as follows:

- **North:** Bower Street and Residential development beyond.
- **East:** Ten acres Lane and commercial units beyond.
- **South:** Rochdale Canal, with open land beyond.
- **West:** Commercial/industrial units.

An aerial view of the site is included in Figure 1, and the Proposed Site Layout is provided in Appendix A of this report.

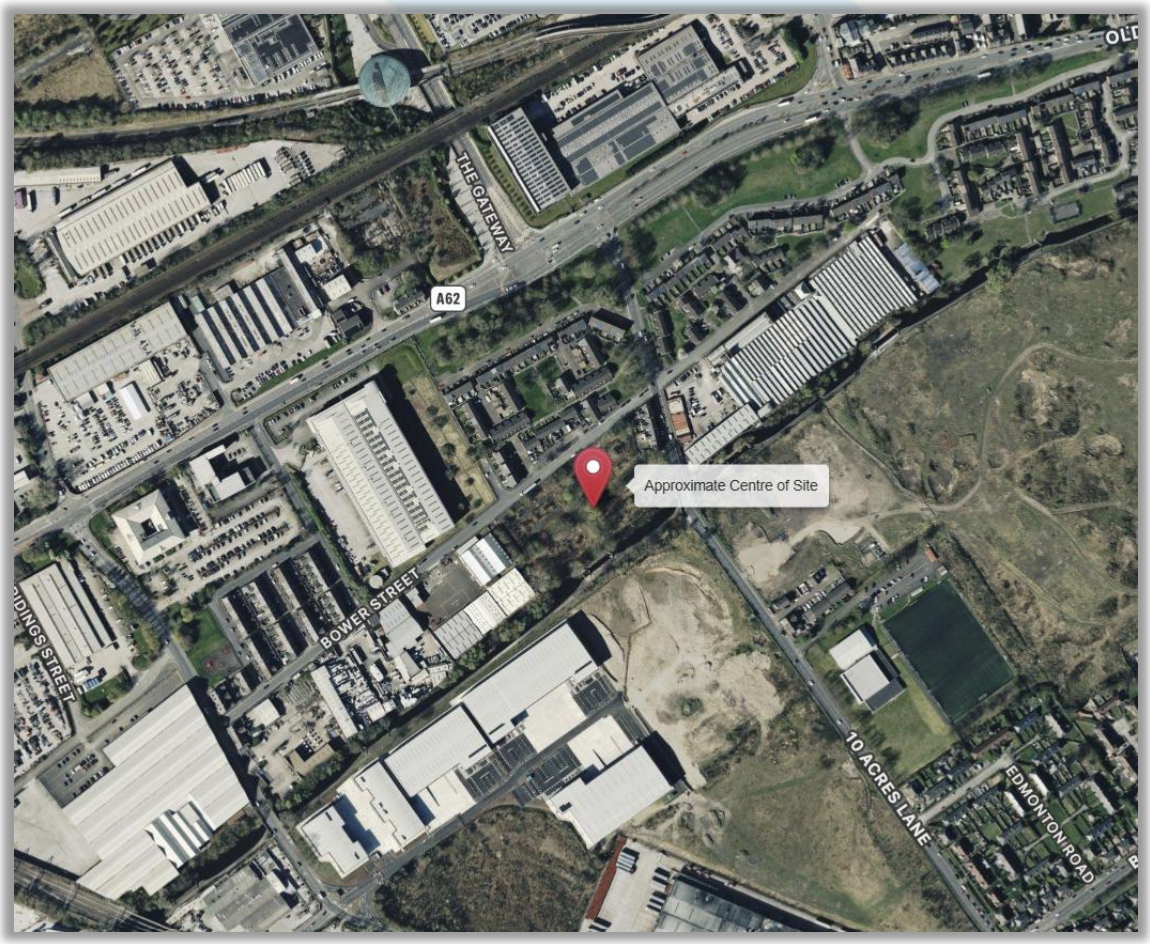


Figure 1 AERIAL VIEW OF DEVELOPMENT SITE

WATER BODIES

There is a Rochdale canal located on the southern extent of the development site.

Based upon the location of the water feature it is anticipated surface water flows will discharge to the southern canal. This will be subject to relevant consents and approvals.

FLOOD ZONE & SFRA REVIEW

According to the Environment Agency's Flood Map for Planning (accessible via the GOV.UK website), the site is located within Flood Zone 1.

As defined in Table 1 of the Flood Risk and Coastal Change Guidance, Flood Zone 1 comprises:

"*Land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%)",*
i.e., land outside Flood Zones 2, 3a, and 3b.

This classification indicates that the site is at low risk of fluvial or tidal flooding and is considered appropriate for development in accordance with the sequential approach set out in the National Planning Policy Framework (NPPF).

A copy of the Flood Map for Planning is provided in Appendix B.

Further discussion and analysis of flood risk, including consideration of residual risks and mitigation measures, is provided in Section 7 of this report.

4.0 DEVELOPMENT PROPOSALS

DEVELOPMENT OVERVIEW:

- 1.28Ha redline boundary, with a proposal to develop a data centre and associated infrastructure.
- Access from the Bowers Street will be achieved.

INFRASTRUCTURE AND LAYOUT:

- Designated parking spaces as required.
- Soft landscaping and sustainable drainage systems including permeable surfaces where applicable and surface water management.

ADOPTION AGREEMENTS:

- Not Applicable, all infrastructure to remain private.

FLOOD RISK AND VULNERABILITY CLASSIFICATION:

- Existing site use is classified as Less Vulnerable to flood risk.
- Proposed industrial/Commercial use classified as More Vulnerable, with the site being located in Flood Zone 1 it is compatible.

DESIGN LIFE CONSIDERATIONS:

- In accordance with NPPF Annex 3 and Planning Practice Guidance, the development is assumed to have a design life of at least 100 years for flood risk assessment purposes.

An aerial view of the site is included in Figure 1, and the Masterplan Layout is provided in Appendix A of this report.

5.0 SEQUENTIAL TEST

As outlined in Section 3 of this report, the site lies within Flood Zone 1.

This classification indicates that the site is at low risk of fluvial or tidal flooding and is considered appropriate for development in accordance with the sequential approach set out in the National Planning Policy Framework (NPPF).

6.0 CLIMATE CHANGE

PEAK RIVER FLOW ALLOWANCE

According to the DEFRA Climate Change Allowances, derived from UK climate change projections produced by the UK Centre for Ecology and Hydrology, peak river flow allowances are provided for various epochs (2020s, 2030s, and 2080s) and include central, higher central, and upper-end scenarios.

In accordance with Environment Agency guidance on the application of climate change allowances, developments situated within Flood Zone 1 should adopt the central allowance for all flood vulnerability classifications. Given that the site is within Flood Zone 1 and the proposed development is classified as “More Vulnerable,” the central allowance for peak river flow has been applied in this assessment.

PEAK RAINFALL INTENSITY ALLOWANCE

The DEFRA Climate Change Allowances map also provides peak rainfall intensity allowances for the 2050s and 2070s epochs, considering the 3.3% (1 in 30 year) and 1% (1 in 100 year) annual exceedance probability events.

In line with the Environment Agency’s Flood Risk and Coastal Change Guidance, the upper end allowance should be used for assessing surface water flood risk in developments for the 2070s epoch. For this site, the upper end allowance of +40% has been applied to both the 3.3% and 1% annual exceedance probability events.

These values have been used to inform the surface water drainage design, including estimation of attenuation storage requirements, to ensure that the development remains resilient to the impacts of climate change over its assumed 100-year design life.

7.0 SITE SPECIFIC FLOOD RISK

FLUVIAL AND SEA FLOODING

Flood map for planning attached within Appendix B shows the majority of the site to be located within flood zone 1.

Flood Zone 1 (FZ1) is defined in Planning Practice Guidance as a low-risk area, which comprises land assessed as having less than 1 in 1,000 annual probabilities of river or sea flooding (0.1%).

NPPF Technical Guidance states that all uses of land are appropriate in Flood Zone 1.

As the site is located within Flood Zone 1 and has a site area greater than 1.0-hectare other sources of flooding should be considered.

PLUVIAL FLOODING

The online Environment Agency surface water flood risk maps have been reviewed, and areas of flood risk have been identified around the site, with localised ponding within the site.

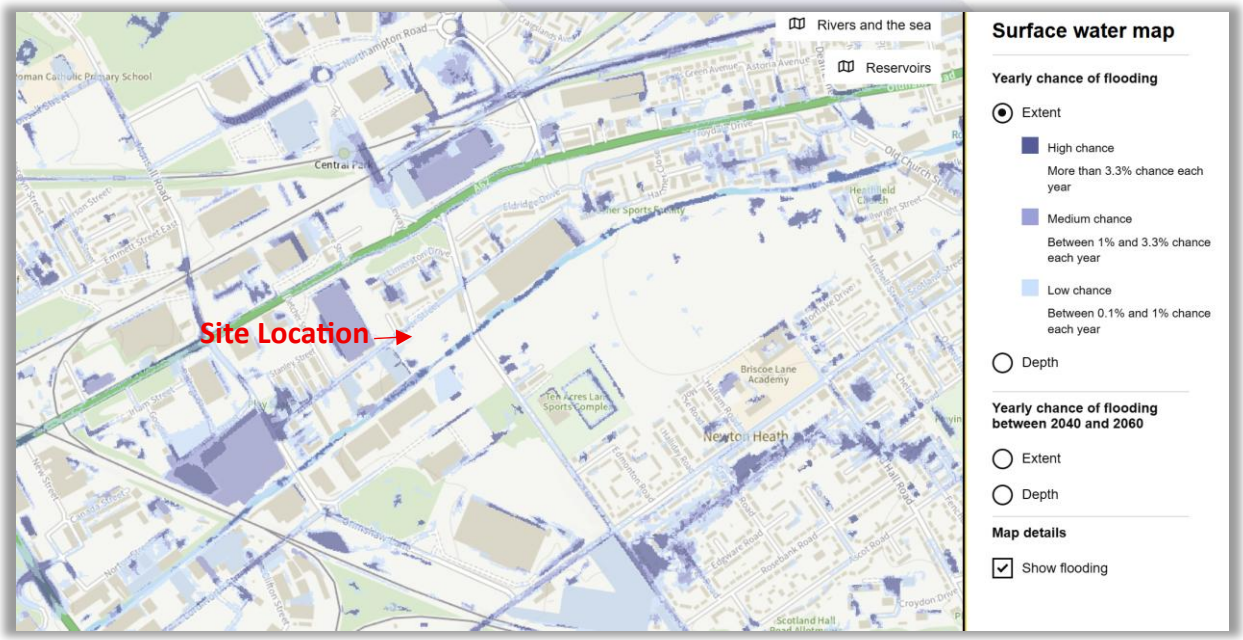


Figure 2 EA Surface Water Map

Figure 2 above illustrates the extent of the annual probability of surface water flooding. The figure indicates that there is surface water flooding associated within the development site located in proximity of the site with the main risk being associated with flows along Bower Street, although these do not enter the site. To ensure no variation to the risk from Bower Street the access should be raised towards the site to match existing levels or be increased.

There are two areas of ponding identified within the site, but these are not overland flows and as such the introduction of positive drainage will ensure these are removed and managed. Based on this, the surface flood risk associated with the development site can be managed.

Therefore, risk of flooding from surface water is LOW.

TIDAL/COASTAL FLOOD RISK

The site is not considered to be at risk from tidal flooding and sea level rise due to climate change is not expected to influence the site. The site is at LOW risk.

GROUND WATER FLOODING

The EA information indicates that the site is located within an area not considered to be at risk from groundwater flooding.

Based on the local topography and the location of surface watercourses, it is considered unlikely that shallow groundwater be present on site.

Based on the available information the risk of groundwater flooding is considered LOW.

Following intrusive site investigation works, any groundwater encountered should be reported to the engineer/developer to ensure the risk does not vary.

FLOODING FROM EXISTING SEWERS/DRAINS

The public sewers near the site are public sewers owned by United Utilities and will be subject to regular maintenance and inspection; therefore, blockage of these sewers is unlikely.

There are known public surface water sewers that cross the site from the previous phases.

The risk of flooding from sewers is low.

RESERVOIR FLOODING

Reference to the Environment Agency information confirms that the site is outside of the zone of influence from any reservoir flooding. Based on the available information, it is assessed that the site is at LOW risk of reservoir flooding.

MANAGEMENT OF FLOOD RISK

DESIGN OF EXTERNAL SURFACES

Engineering site levels to be designed to provide positive drainage away from buildings and other sensitive receptors, directing surface water towards the site drainage infrastructure. Proposed highway levels to be designed to fall towards the site boundary to ensure runoff is directed away from the site. Where a low point within the highway is unavoidable, double gullies to be installed at the low point to enhance drainage capacity. In such locations, finished floor levels (FFLs) to be set above the anticipated standing water level to provide resilience in the event of surface water drainage system failure i.e. blockage.

FINISHED FLOOR LEVELS

Finished floor levels will be set a minimum of 150 mm above surrounding ground levels.

COMPENSATORY FLOOD STORAGE

Levels along the site boundary are to be maintained, with no alterations to ground levels outside the site boundary. As the site is located in flood zone 1, there is not consideration for compensatory storage.

FLOOD RESILIENCE /RESISTANCE

Finished floor levels will be set a minimum of 150 mm above surrounding ground levels.

ACCESS AND EGRESS

The site is located within Flood Zone 1, and as such, no dedicated emergency access/egress measures are required.

SURFACE WATER MANAGEMENT

Surface water management is described in detail in Section 8 of this report, outlining measures to ensure that no flooding occurs on-site under current or future rainfall scenarios.

FLOOD RISK SUMMARY

RWO has undertaken a comprehensive assessment of all current and future flood risk sources affecting the site.

The table below provides a summary of the risk ratings for each potential flood source:

Flood Risk		
Source of Flooding	**Risk**	**Control Measures**
Fluvial and sea	Low	N/A
Pluvial	Low	External Surface design for Runoff away from buildings
Flood defences	Low	None
Groundwater flooding	Low	None
Sewers and Private Drainage	Low	Proposed Site Drainage
Other Sources	None Identified	

8.0 SURFACE WATER MANAGEMENT & SUDS COMPLIANCE

It is recommended and in accordance with good practice that the offsite surface water flows are reduced by the introduction of an attenuation system following the hierarchy as laid out in the approved document H of Building Regulations with respect to Sustainable Urban Drainage Systems (SUDS).

The following destinations must be considered for surface runoff in order of preference:

- Collected for non-potable use (noted not a requirement of Building regulations at present)
- Discharge into the ground
- Discharge to a surface water body
- Discharge to a surface water sewer
- Discharge to a combined sewer

The anticipated ground investigations identified in the phase 1 desktop study, report reference 25-2676-01, excludes infiltration into ground based on available information. Consequently, it will be necessary to consider alternative sustainable drainage systems (SUDS), and there may be a need for surface water balancing.

Whilst the disposal of surface water by infiltration methods is not feasible Sustainable Urban Drainage System (SUDS) may be used in conjunction with conventional drainage systems to improve water quality as well as manage surface water discharge.

The following audit has been carried out relating to suitability of SUD's systems:

Drainage Method	Description/Suitability	Proposal/Feasibility
1. Infiltration.	Due to anticipated ground conditions infiltration will not be feasible.	Excluded.
2. Ponds and wetlands.	Suitable subject to land being made available & ground water levels	Excluded.
3. Infiltration Basins.	Due to anticipated ground conditions infiltration will not be feasible.	Excluded.
4. Detention Basins.	Suitable subject to land being made available & ground water levels	Excluded.
5. Swale.	May be utilised convey water/improve water quality.	Excluded.
6. French/Filter drain.	May be utilised convey water/improve water quality.	Applicable.
7. Pervious/Permeable Pavement.	May be utilised convey water/improve water quality.	Applicable (if tanked and drained) for car parking areas only.

8. Geocellular Systems/Tank systems.	May be used as surface water attenuation.	Applicable but not required.
9. Oversized pipes.	May be used as surface water attenuation.	Applicable but not required.
10. Box culverts.	May be used as surface water attenuation.	Applicable but not required.
11. Purpose designed tanks.	May be used as surface water attenuation.	Applicable but not required.
12. Rainwater re use	Water butts and rainwater harvesting.	Applicable for re use only, subject to space. Due to unreliable, high install costs and need for ongoing maintenance this may be ruled out as option on site as this is currently not required as part of Building Regulations.

SURFACE WATER DRAINAGE

The disposal of surface water shall be in accordance with the Requirement H3 of Building Regulations. This establishes a preferred hierarchy for surface water disposal. Consideration should firstly be given to discharge to collection for non-potable use, soakaway/infiltration system, watercourse, and public sewer in that priority order.

In line with the National SuDS Standards (2025), the development should prioritise the collection and re-use of rainwater subject to building regulations inclusion. The proposed development shall therefore consider feasible measures for rainwater harvesting to serve end uses such as WC flushing, and irrigation. This will need to be assessed by the MEP consultant and considered as part of their detailed design based on site layout, roof catchment configuration, maintenance arrangements, and whole-life cost considerations, and is to be designed in accordance with BS EN 16941-1 and the CIRIA SuDS Manual (C753) to ensure water quality, operational reliability, and regulatory compliance.

As noted in the SUDS section, the discharge of surface water drainage via infiltration methods is not suitable. The second consideration for the disposal of surface water should be discharge to a waterbody. As the site is located adjacent to an existing watercourse, Rochdale Canal, the proposal is to discharge surface water from site into the existing watercourse, subject to relevant consents and approvals.

An IH124 calculation has been undertaken to confirm the Greenfield rate of runoff (Qbar) for the site developable area. This existing greenfield rare of run off as 8.3 litres/second.

A copy of the IH124 calculation is included in Appendix C.

Onsite attenuation will be required for all storm values up to and including the 100yr + 40% Climate Change event and will be accommodated via an online attenuation structure in accordance with the latest Ciria Guidance. The flow rate is not restricted prior to entering the attenuation structure, but the flow is restricted prior to leaving the site. The flow is to be

restricted by a hydro brake flow control manholes (the hydro brake is to be maintained by a management company/developer).

Source control of pollutants in high-risk areas will be provided by permeable paving for car parking and final treatment will be provided through the inclusion of a Hydro Downstream Defender or similar approved to ensure water quality is managed.

By ensuring that the discharge rate is restricted there will be no increase in the flood risk to third parties. This will offer an improved position to the catchment downstream by capturing controlling and conveying flows at a controlled discharge rate.

ATTENUATION DETAILS

The attenuation volumes will be confirmed during the design and Source Control Micro Drainage calculations will be undertaken for the worst-case storm event of 100yr + 40% Climate Change events to identify the required surface water attenuation volumes.

FLOOD RISK

To prevent increased flood risk to third-party land, the proposed drainage system will be designed in accordance with Ofwat requirements, ensuring:

- No pipe surcharge during a 1 in 2-year rainfall event
- No surface flooding in a 1 in 30-year rainfall event
- No flooding of buildings or adjacent properties in a 1 in 100-year event, including a 40% allowance for climate change

In addition to this flood flow analysis will be carried out at the next stage of planning to identify overland flow routes.

MAINTENANCE

A maintenance regime and strategy will be required to determine the details for inspection and maintenance specification for sustainable drainage systems (SuDS) maintained by a management company on behalf of the developer.

DISCHARGE

It is proposed to discharge surface water to watercourse at the restricted rate. With flows being ultimately conveyed to the Rochdale Canal.

9.0 OCCUPANTS AND USERS OF THE DEVELOPMENT

An essential aspect of a Flood Risk Assessment is evaluating the potential impact of flooding on the occupants and users of the proposed development. As outlined in Section 7 of this report, the site has been assessed as being at low risk of flooding from all identified sources. On this basis, the proposed development is considered to pose no significant flood risk to future occupants and is therefore deemed safe.

10.0 EXCEPTION TEST

Essential Infrastructure		Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Flood Zone	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	Exception Test required	✓	✓	✓
	Zone 3a †	Exception Test required †	**X**	Exception Test required	✓	✓
	Zone 3b *	Exception Test required *	**X**	**X**	**X**	✓ *
Key:	✓ Exception test is not required **X** Development should not be permitted					
Notes to Table 2	•This table does not show the application of the Sequential Test which should be applied first to guide development to the lowest flood risk areas; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea; •The Sequential and Exception Tests do not need to be applied to those developments set out in National Planning Policy Framework footnote 56. The Sequential and Exception Tests should be applied to 'major' and 'non major' development; • Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts. "†" In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood. "*" In Flood Zone 3b (functional floodplain) essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to: • remain operational and safe for users in times of flood; • result in no net loss of floodplain storage; • not impede water flows and not increase flood risk elsewhere.					

Table 1: NPPF Table 2 Flood Risk Vulnerability & Flood Zone Compatibility.

With reference to NPPF Table 1 Flood Zones and to Environment Agency mapping, the site is located within Flood Zone 1. With reference to NPPF Table 2 Flood Risk Vulnerability

Classification, the proposed usage would be of a more vulnerable classification. With the site being located within Flood Zone 1 and being of a more vulnerable classification, reference to NPPF Table 2 Flood Risk Vulnerability and Flood Zone Compatibility, shows that 'Development is Appropriate'.

Therefore, it is concluded that no further assessment, including Exception Testing, is necessary.

11.0 RESIDUAL RISK

A Flood Risk Assessment must consider the residual risk to the proposed development over its intended design life. For development, a 100-year design life is typically assumed.

As detailed in the preceding sections, all potential sources of flooding—including fluvial, pluvial, groundwater, sewer, and artificial sources—have been assessed and found to pose a low risk to the site. The assessment has accounted for the impacts of climate change over the full lifecycle of the development, including the application of a 40% allowance for increased rainfall intensity.

In addition, appropriate mitigation measures have been incorporated to manage extreme flood scenarios, including the 0.1% Annual Exceedance Probability (AEP) event (1 in 1000-year storm event). These measures ensure that even in the event of exceedance, the development remains resilient, and flood risk is controlled.

Therefore, the residual flood risk to the development over its 100-year design life is considered to be LOW, with mitigation strategies in place to maintain protection against both current and future flood risk.

12.0 FOUL DRAINAGE STRATEGY

The proposed site drainage will consist of a separate system for surface water and foul water.

Foul water from the development will discharge, without restriction, into the existing public foul sewer system, subject to approval by United Utilities.

The proposed foul drainage system has been designed to accommodate this peak flow rate, ensuring that there is no surcharge or risk of foul flooding during peak usage periods.

13.0 WATER QUALITY

Water quality treatment measures have been reviewed and implemented in accordance with the CIRIA SuDS Manual C753 using the Simple Index Approach (SIA), ensuring pollutants are effectively mitigated across the development. A combination of SuDS components has been incorporated to provide treatment at various stages:

- **Permeable paving** on all car parking spaces
- **Downstream Defender** to provide additional treatment

The Simple Index Approach requires that the Total SuDS Mitigation Index for each contaminant (suspended solids, metals, hydrocarbons) equals or exceeds the Pollution Hazard Index for the proposed land use:

Total SuDS mitigation index ≥ Pollution hazard index

This principle has been applied to the proposed drainage design, ensuring compliance with C753 guidance. The highest risk land use within the development (e.g., car parking) has been selected for assessment, ensuring a conservative and robust approach.

The Downstream Defender is appropriately sized to treat runoff from low-traffic roads, particularly in managing total suspended solids (TSS) and associated heavy metals. The system as a whole offers treatment, safeguarding water quality prior to discharge to the receiving watercourse.

Table 4 – Pollution Hazard Index (Ciria SuDS Manual C753)

Land Use	Total Suspended Solids	Metals	Hydrocarbons
Carparks, low traffic roads	0.5	0.4	0.4

Table 5 – Total SuDS mitigation index (Ciria SuDS Manual C753)

SuDS Component	Total Suspended Solids	Metals	Hydrocarbons
Permeable Paving	0.7	0.6	0.7
Road gullies (RG)	unstated	-	-
Linear Drainage	unstated	-	-
Downstream Defender	0.5	0.5	0.6

Tables 4 and 5 demonstrate that the proposed SuDS treatment train provides a sufficient level of water quality treatment in accordance with the CIRIA SuDS Manual C753. The combination of permeable paving, and a Downstream Defender ensures treatment for Total Suspended Solids (TSS), metals, and hydrocarbons.

14.0 CONSTRUCTION AND SURFACE WATER MANAGEMENT

To effectively manage surface water during the construction phase, two key measures are proposed:

1. Interceptor drains with sumps will be installed within each phase or parcel of development, and
2. Construction of the proposed attenuation basin will be prioritised as early as practicable.

The interceptor drains will be implemented following the topsoil strip and will function to collect and convey overland flows across the site. Sumps will be positioned at low points along the interceptor drains to capture silt, debris, and potential pollutants, thereby reducing the risk of contamination and sediment transport. This system will ensure that surface water is effectively controlled during the earthworks and infrastructure phases.

The early construction of the SuDS basin will provide downstream protection by offering attenuation and acting as a secondary water quality control feature. The basin will include a temporary forebay area and berm to collect silt and debris, allowing the main basin to establish effectively and retain its long-term function.

An indicative Surface Water Construction Management Drawing will be prepared and issued prior to the commencement of works, outlining the layout and implementation of the temporary drainage measures.

15.0 CONCLUSIONS

The proposed development has been assessed in detail with respect to flood risk and surface water management. The site is located in Flood Zone 1, indicating a low risk of fluvial flooding, and all other potential sources of flooding—including pluvial, groundwater, sewer, and artificial sources—have been determined to pose a low or manageable risk.

A robust surface water management strategy has been developed to ensure the proposed development does not increase flood risk either on-site or to third-party land. This includes discharging to the Rochdale Canal in place at a controlled greenfield runoff rate of 8.7 l/sec, incorporating sustainable drainage systems (SuDS), and ensuring attenuation storage for critical storm events, including allowance for climate change.

The approach aligns with national guidance, local planning authority standards, and best practices in sustainable drainage design. Additionally, appropriate source control measures and water quality treatment have been integrated, along with plans for long-term maintenance.

As such, it is concluded that the development can proceed without increasing flood risk, with appropriate safeguards in place to manage surface water both during and after construction. The drainage strategy delivers a sustainable and resilient solution that supports the wider objectives of flood risk mitigation and environmental protection.

16.0 FRA & DRAINAGE STRATEGY CREDENTIALS

This flood risk assessment and drainage strategy has been carried out by the RWO civil engineering team, who have extensive knowledge of carrying out flood risk assessments and producing drainage strategies for development sites UK wide.

APPENDIX A: SITE LAYOUT

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ALL DIMENSIONS ARE TO BE CHECKED ON SITE PRIOR TO CONSTRUCTION
AND ALL DISCREPANCIES TO BE REPORTED TO info@createarchitecture.co.uk



KEY

1. Site Boundary + SR2 Rated Security Fence
2. Proposed 2.4m SR2 Rated Security Fence
3. Plant Screening
4. Bifold Security Gates
5. Vehicle Holding Area
6. Electric Vehicle Charging Bays
7. Substation
8. Modular Power Units
9. Generator Sets
10. Chillers on Gantry
11. Enhanced Vegetation
12. Service Yard
13. Waste Store
14. Bike Store

Proposed Site Plan
1 : 500

CONFIDENTIAL

PRELIMINARY

Revision:	Description:	Drawn:	Chk:	Date:
P3	Issued for Information	SLH		21.01.26
P2	Issued for Information	SLH		09.01.26
P1	Preliminary Issue	SLH		22.12.25

Project:	Originator:	Volume:	Levels:	Type:	Role	Number:	Revision:
LD01BS	CA	ZZ	XX	DR	A	SK-004	P3

Project: Proposed Data Centre
Bower Street
Manchester

CAL Project No:

Client: Latos

Drawing: **Proposed Site Plan**

Scale: As indicated | Print Size: A1 | Drawn By: DC | Chckd By: SLH

Map House,
3 George Stephenson Court,
Preston Farm,
Stockton on Tees,
TS18 3TG

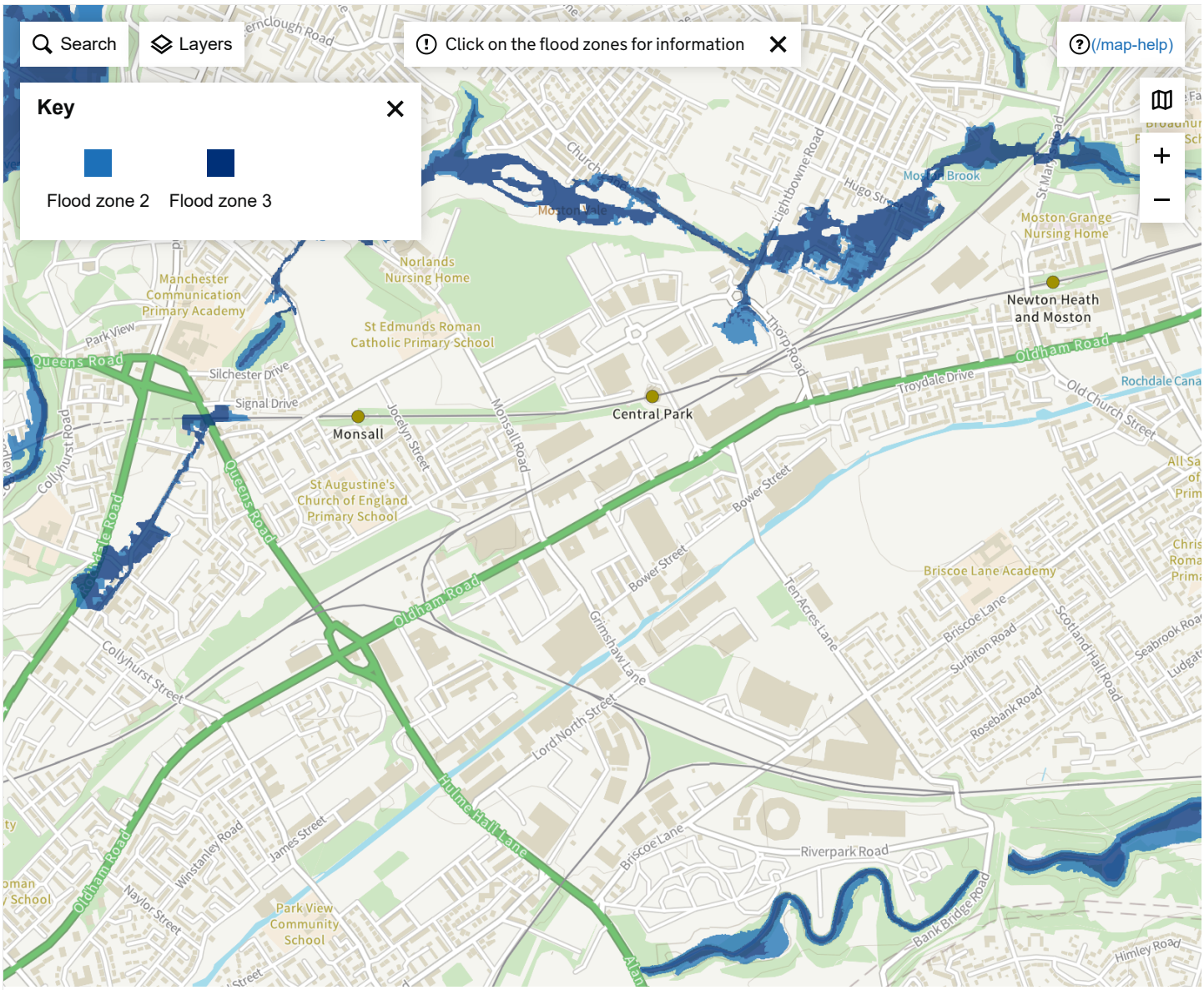
t : 01642 062521
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APPENDIX B: EA FLOOD MAP


Search
Layers
Click on the flood zones for information
(/map-help)
Key
Flood zone 2
Flood zone 3
Monsall
Central Park
Newton Heath and Moston
Moston Grange Nursing Home
Norlands Nursing Home
Manchester Communication Primary Academy
St Edmunds Roman Catholic Primary School
St Augustine's Church of England Primary School
Park View Community School
Briscoe Lane Academy
Oldham Road
Queens Road
Hulme Hall Lane
Riverpark Road
Bank Bridge Road
Himley Road
300 m
Ordnance Survey
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APPENDIX C: GREENFIELD RUNOFF

Greenfield runoff rate estimation tool

www.uksuds.com | Greenfield runoff rate estimation tool (https://www.uksuds.com/)

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	02/04/2026
Calculated by	Ross Oakley
Reference	25202
Model version	2.2.3

Location

Site name	Bower Street
Site location	Manchester



Site easting (British National Grid)	387064
Site northing (British National Grid)	400177

Site details

Total site area (ha)	1.22 ha

Greenfield runoff

Method

Method	IH124

IH124

	My value		Map value
SAAR (mm)	936 mm		936
How should SPR be derived?	WRAP soil type		
WRAP soil type	4		4
SPR	0.47		
QBar (IH124) (l/s)	8.3 l/s		

Growth curve factors

	My value		Map value
Hydrological region	10		10
1 year growth factor	0.87		
2 year growth factor	0.93		
10 year growth factor	1.38		
30 year growth factor	1.7		
100 year growth factor	2.08		
200 year growth factor	2.37		

Results

Method	IH124
Flow rate 1 year (l/s)	7.2 l/s
Flow rate 2 year (l/s)	7.7 l/s
Flow rate 10 years (l/s)	11.4 l/s
Flow rate 30 years (l/s)	14.1 l/s
Flow rate 100 years (l/s)	17.2 l/s
Flow rate 200 years (l/s)	19.6 l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent 'zero' figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at uksuds.com (https://www.uksuds.com/). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (https://www.uksuds.com/terms-conditions). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

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