



MCI Developments Limited

Crabtree Lane, Openshaw

Flood Risk Assessment

680215-R1(01)-FRA



JULY 2022





RSK GENERAL NOTES

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MCI Developments Limited
Crabtree Lane, Openshaw
Flood Risk Assessment
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1 INTRODUCTION

1.1 Context

RSK Land and Development Engineering Ltd (RSK) was commissioned to carry out a Flood Risk Assessment (FRA) for MCI Developments Limited (the 'client'). The assessment is in support of the planning submission for the residential development at land off Crabtree Lane, Openshaw (the 'site').

The assessment has been prepared in accordance with the National Planning Policy Framework (NPPF)¹ and its accompanying Planning Practice Guidance², the Interim Code of Practice for Sustainable Drainage³, BS 8533-2017 Assessing and Managing Flood Risk in Development Code of Practice⁴, BS 8582:2013 Code of practice for surface water management for development sites⁵ and the Non-statutory technical standards for sustainable drainage systems⁶, with site-specific advice from the Environment Agency (EA), the Lead Local Flood Authority (LLFA), the Local Planning Authority (LPA), the architect and the client.

The NPPF sets out the criteria for development and flood risk by stating that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere.

The key definitions within the PPG are:

- "Flood risk" is a combination of the probability and the potential consequences of flooding from all sources – including from rivers and the sea, directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems, and from reservoirs, canals and lakes and other artificial sources; and
- "Areas at risk of flooding" means areas at risk from all sources of flooding. For fluvial (river) and sea flooding, this is principally land within Flood Zones 2 and 3. It can also include an area within Flood Zone 1 which the EA has notified the local planning authority as having critical drainage problems.

For this site, the key aspects that require the assessment are:

- The EA's indicative flood zone map shows that the site is located within Flood Zone 1, and;
- The site area is 2.06Ha; therefore, surface water drainage must be considered and sustainable drainage systems (SuDS) incorporated, where possible.

¹ Communities and Local Government, 'National Planning Policy Framework', July 2021.

² Communities and Local Government, 'Planning Practice Guidance - Flood Risk and Coastal Change, ID 7', March 2014. <http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/>

³ DEFRA, 'Interim Code of Practice for Sustainable Drainage Systems' National SUDS Working Group, July 2004.

⁴ BSI, 'BS 8533-2017 Assessing and managing flood risk in development Code of practice', October 2017.

⁵ BSI, 'BS 8582:2013 Code of practice for surface water management for development sites', November 2013.

⁶ DEFRA, 'Sustainable Drainage Systems - Non-statutory technical standards for sustainable drainage systems', March 2015.

1.2 Scope of work

A key element of project development is to prepare a FRA to establish the flood risk associated with the proposed development and to propose suitable mitigation, if required, to reduce the risk to a more acceptable level.

The scope of work relating to a FRA is based on the guidance provided in Section 14 of the NPPF and its accompanying Planning Practice Guidance.

A site-specific FRA must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall. The scope of this assessment therefore comprises the following elements:

- To review architect plans, planning information and other studies to determine existing site conditions;
- To obtain information on the hydrology and hydrological regime in and around the site;
- To obtain the views of the EA/LLFA/IDB including scope, location and impacts;
- To determine the extent of new flooding provision and the influence on the site;
- To assess the impact on the site from climate change effects and anticipated increases in rainfall over a 100 year period for residential uses;
- To review site surface water drainage based on the proposed layout and, if necessary, to determine the extent of infrastructure required; and
- To prepare a report including calculations and summaries of the source information and elements reviewed.

Reliance has been placed on factual and anecdotal data obtained from the sources identified. RSK cannot be held responsible for the scope of work, or any omissions, misrepresentation, errors or inaccuracies with the supplied information. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.

The comments given in this report and opinions expressed are subject to RSK Group Service Constraints provided in **Appendix A**.

2 SITE DESCRIPTION

2.1 Existing site

2.1.1 Location

Site Address: Crabtree Lane,
Openshaw,
Great Manchester
M11 1BR (Nearest)

Site National Grid Reference: 388686E, 398056N

The site is approximately 2.06ha and has been previously developed as a manufacturing plant with associated yard storage, mapping denotes the site as Crabtree Forge. The existing buildings on site are in a poor condition with most hardstanding now covered in dense overgrowth.

Table 2.1, below, provides a description of the immediate surroundings of the site. **Figure 2.1** shows a Site Location Map.

Table 2.1: Site setting

Direction	Characteristic
North	To the immediate north of the site is an asphalt towpath and Ashton Canal. Crabtree Lane lock and a pedestrian access over the canal are located north west of the site boundary.
East	To the east of the site is a yard which appears to be used as aggregate storage from aerial imagery. There is also an undeveloped field and primary school on the eastern boundary.
South	The southern boundary is defined by private rear gardens of the residential dwellings along Eastern By-Pass.
West	The west of the site is defined by Crabtree Lane, land use west of Crabtree Lane is predominantly industrial.



Figure 2.1: Site location map

2.1.2 Land use and topography

The site levels have been assessed using the topographic survey in **Appendix B**. Generally, the site is relatively level with only a minor elevation difference across the site. The highest end of the site is at the north-western boundary with a ground level of approximately 83.38m AOD. There is a continuous fall to the south-western boundary with the lowest elevation at approximately 80.25m AOD. It is noted the site has not been surveyed in its entirety due to the dense overgrowth.

Table 2.2. shows the site being 22% impermeable and considered as previously developed land. Impermeable areas are approximate and based on land confirmed as being hardstanding. Areas denoted as overgrowth have not been included as impermeable area as it is expected any underlying hardstanding will be significantly degraded and no longer positively drained.

Table 2.2: Existing site land uses

Land use	Area (Ha)	Percentage (%)
Impermeable	0.44	22
Permeable	1.62	78
Total	2.06	100

2.1.3 Existing Drainage

The existing drainage on site and in the immediate surroundings has been assessed using the topographic survey (**Appendix B**), the sewer records (**Appendix C**), and CCTV surveying (**Appendix D**), the drainage details are as follows:

- The United Utilities (UU) Sewer Records show that there is a 225mm diameter head of system manhole (manhole reference 6000) outside of the western boundary of the site. The system is classified as a culverted watercourse according to the records. The topographic survey shows this may have a cover level of 82.41mAOD. The watercourse flows westwards away from the site along Claytonbrook Road.
- The sewer records show surface water manholes 6902, 6903 and 6904 within the proximity of the south-western boundary. Following a pre-development enquiry to UU this was explained to be a culverted watercourse (**Appendix E**). The watercourse is shown to be within a 600mm diameter pipe outside of the western boundary according to the sewer records;
- CCTV surveying (**Appendix D**) has confirmed the presence of the culverted water course from the centre of the site towards the western boundary. The eastern extent of watercourse is to be confirmed. The CCTV surveying shows the watercourse receives drainage from within the site via gullies in the yards;
- There is a public combined sewer outside of the south-western boundary, manhole reference 6901, this flows eastwards along Eastern Bypass Road away from the site.
- There is a pipe bridge across the canal, the topographic survey indicates this is a 300mm diameter sewer which crosses the canal at head height and enters the ground in the towpath. The purpose of the pipe is unknown and not indicated on public sewer records;
- CCTV surveying found a private combined sewer which drains to manhole 6901, the sewer starts on site and crosses the south-western corner to reach the public sewer at manhole 6901.

2.1.4 Hydrology

2.1.4.1 Main River

The closest Environment Agency designated 'Main River' is River Medlock, located approximately 1.1km to the north of the site.

2.1.4.2 Ordinary watercourse

There is a culverted watercourse which is shown to start inside of the western boundary of the site at manhole 6902 according to UU sewer records. The watercourse is shown to flow southwards away from the site in a 600mm pipe along Crabtree Lane according to the sewer records in **Appendix C**.

The Environment Agency provided mapping of the onwards flow route of the culverted watercourse located on site (**Appendix F**). The watercourse is shown to daylight and discharge to an unnamed watercourse between Amborse Street and Textile Street approximately 1.6km south-west of the site, the drainage run is approximately 1.9km in length. It is considered to be part of the Corn Brook catchment.

The LLFA also provided historic mapping of the site (**Appendix G**) which shows the culverted watercourse crosses the site from east to west.

There is a second culverted watercourse head of system outside of the western boundary at manhole 6000. The watercourse flows westwards away from the site along Claytonbrook Road within a 225mm diameter pipe.

2.1.4.3 Canal

The Ashton Canal and associated towpath defines the northern boundary of the site. Historic water levels of the canal were requested from the Canals And Rivers Trust (C&RT) however none were available for this location (**Appendix I**). At the time of the topographic survey the water level was recorded at 83.03mAOD. According to the C&RT Lock 13 at Crabtree Lane has a by-wash culvert, they advise this will need protecting from damage should any constructed works be undertaken close to the culvert.

2.1.5 Geology

2.1.5.1 Desk Study

According to British Geological Surveying mapping, the underlying geology on the site can be described as the following:

- Superficial Geology: Till, Devensian - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions.
- Bedrock Geology: Chester Formation - Sandstone. Sedimentary Bedrock formed approximately 247 to 250 million years ago in the Triassic Period. Local environment previously dominated by rivers.

BGS Borehole data records were searched for nearby trial/borehole logs that may give relevant information regarding the on-site geology. There are no records taken within or close to the site boundary.

2.1.6 Hydrogeology

Hydrogeological classification information was obtained from the online 'Magic Map' service. The site is underlain with bedrock geology designated as a Secondary B aquifer. These are described as predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

The site is underlain with superficial deposits designated as Secondary Undifferentiated aquifers. In this case it means that it hasn't been possible to differentiate if the deposits are Secondary A or Secondary B. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type. This does however indicate there is some level of permeability that means ground water may be stored on a local scale.

Mapping shows the site is not within any designated Groundwater Source Protection Zones or Drinking Water Safeguard Zones.

2.2 Development proposals

The proposed development is for a residential end use which will encompass the full site area of 2.06Ha. Plans of the proposed development are shown in **Appendix H**. This area will contain a variety of dwellings, driveways, gardens, and access highways. Of this

development area an approximate impermeable area of 1.178Ha has been calculated from the development proposal drawing.

The approximate land uses of the proposed site are summarised in Table 2.4 below.

Table 2.4: Proposed site land uses

Land use	Area (Ha)	Percentage of Total Site (%)
Impermeable	1.178	57
Permeable	0.882	43
Total Site Area	2.06	100.0

3 LEGISLATION, POLICY AND GUIDANCE

3.1 National policy

Table 3.1: National legislation and policy context

Legislation	Key provisions
National Planning Policy Framework (2021)	The aims of planning policy on development and flood risk are to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas at highest risk. Where new development is, exceptionally, necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and where possible, reducing flood risk overall.
Planning Practice Guidance (2014)	The NPPF is supported by an online Planning Practice Guidance, which provide additional guidance on flood risk.
Flood and Water Management Act 2010 ⁷	The Flood and Water Management Act (FWMA) aims to implement the findings of the 2007 Pitt Review and co-ordinate control of drainage and flood issues. There are a number of increased responsibilities within the Act that affect adoption of SuDS features and the role of the EA to expand on the mapping data they provide. The implementation of SuDS features has many beneficial impacts on the treatment of surface water during remediation works.
Water Resources Act 1991 ⁸	Section 24 – The EA is empowered under this Act to maintain and improve the quality of 'controlled' waters Section 85 – It is an offence to cause or knowingly permit pollution of controlled waters Section 88 – Discharge consents are required for discharges to controlled waters
Water Framework Directive (2000) ⁹	The Water Framework Directive (WFD) requires all inland and coastal waters to reach 'good' chemical and biological status by 2015. Flood risk management is unlikely to have a significant impact on chemical water quality except where maintenance works disturb sediment (such as de-silting) or where pollutants are mobilised from contaminated land by floodwaters. The main impact of the WFD on flood risk management, both now and in the future, relates to the ecological quality of water bodies. Channel works, such as straightening and deepening, or flood risk management schemes that modify geomorphological processes can change river morphology. The WFD aims to protect conservation sites identified by the EC Habitats Directive and Birds Directive that have water-related features, by designating them as 'protected sites'.

⁷ Flood and Water Management Act, 2010

⁸ Water Resources Act, 1991

⁹ EU Water Framework Directive, 2000

3.2 Local policy

Table 3.2: Local policy legislation and policy context

Study	Overview of key provisions and policies
Manchester Core Strategy 2012 to 2027 Manchester City Council	'Policy EN 14 Flood Risk In line with the risk-based sequential approach contained within PPS25, development should be directed away from sites at the greatest risk of flooding, and towards sites with little or no risk of flooding; this should take account of all sources of flooding identified in the Manchester-Salford-Trafford Strategic Flood Risk Assessment (SFRA) In addition to the requirements for site-specific Flood Risk Assessments (FRAs) set out in PPS25, an appropriate FRA will also be required for all development proposals, including changes of use, on sites greater than 0.5ha within Critical Drainage Areas (CDAs) and Canal Hazard Zones identified in the SFRA. All new development should minimise surface water run-off, including through Sustainable Drainage Systems (SUDS) and the appropriate use of Green Infrastructure. Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach / rates will be required. The City of Manchester contains many sections of rivers which are culverted or 'hidden'; where these are indicated in the SFRA beneath the proposed development site, further investigation will be required and the development proposal should take this into account; where feasible and appropriate development should seek to open up culverted/hidden rivers to reduce the associated flood risk and danger of collapse, taking advantage of opportunities to enhance biodiversity and Green Infrastructure.

3.3 Area guidance

Table 3.3: Area Guidance

Study	Overview of key provisions and policies
PFRA: Manchester City Council Preliminary Flood Risk Assessment	Preliminary Flood Risk Assessments are produced by Lead Local Flood Authorities (LLFAs) in England and Wales. A Preliminary Flood Risk Assessment (PFRA) is the first part of the planning cycle for flood risk management as set out in the Flood Risk Regulations (2009), which implement the requirements of the European (EU) Floods Directive (2007). The EU Floods Directive aims to provide a consistent approach to managing flooding across Europe. The PFRA is produced by the LLFA (in this case Manchester City Council). The PFRA considers local sources of flooding that the LLFA is responsible for: surface runoff, groundwater and ordinary watercourses. Information is gathered from existing sources on past floods and flood models to identify Flood Risk Areas. The PFRA makes no specific mention to Crabtree Lane or Openshaw.

Study	Overview of key provisions and policies
SFRA: Manchester City Council Level 1 Strategic Flood Risk Assessment March 2010	The principle aim of the Strategic Flood Risk Assessment (SFRA) was to map all forms of flood risk in order to provide an evidence base to locate new development. It also aims to provide appropriate policies for the management of flood risk, and identify the level of detail required for site-specific FRAs. The SFRA contains information and maps detailing flood sources and risks. There is no specific mention to the site or to any of the surrounding properties.
SFRA: Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA Strategic Flood Risk Assessment March 2011	The principal aim of the Level 2 SFRA is to provide a more detailed understanding of flood risk across Manchester, Salford and Trafford from all sources. The report makes no mention of Crabtree Lane specifically. The report does identify that Openshaw is predominantly drained by culverted watercourses which drain to Corn Brook. The report provides detailed flood mapping, these includes the following details: • Canal Hazard Zone mapping – the site is shown outside of flood extents; • Fluvial 1 in 100 year with Climate Change Flood Depth – the site is shown outside of flood extents; • Susceptibility to Surface Water Flooding Current Scenario – the central site area and east boundary are shown as Low Susceptibility to surface water flooding. Land to the east of the site is shown as Intermediate and High susceptibility to surface water flooding; • Susceptibility to Surface Water Flooding Future Scenario – the central site area is shown as Low Susceptibility to surface water flooding. The eastern boundary is shown as Intermediate Susceptibility to surface water flooding. Land to the east of the site is shown as Intermediate and High susceptibility to surface water flooding; • Susceptibility to Surface Water Flood Maps show a 'lost watercourse' crosses the central site area; • Groundwater Flooding mapping – The site is outside of flood risk extents. Canal Hazard Flood Mapping has been included in Appendix J due to the importance of the mapping for the assessment of canal flood risk to the proposed development. The mapping has been produced by JBA Consulting for the Level 2 SFRA.

3.4 Site-specific consultation

As part of this assessment, the following authorities have been contacted to obtain relevant data/guidance and establish key site constraints:

Table 3.4: Key site-specific consultations

Consultee	Enquiry	Appendix
Environment Agency (EA)	A pre-application enquiry submitted to obtain further flood information and policy guidance. The response included: • Confirmation of Flood Zone 1; • Mapping of the minor watercourse within the site boundary.	Appendix F
Lead Local Flood Authority (LLFA) – Manchester City Council	A pre-application enquiry submitted to obtain further flood information and policy guidance. The response included: • ‘For sites demonstrated to be discharging via brownfield mechanisms, we require details of surface water attenuation that offers a reduction in surface water runoff rate in line with the Manchester Trafford and Salford Strategic Flood Risk Assessment, i.e. at least a 50% reduction in runoff rate compared to the existing rates. Should discharge to an ordinary watercourse be considered, a reduction to greenfield rates would be required. This may apply to other types of waterbody. Discharge into other assets regulated by 3rd parties would require evidence of agreement on discharge rate and/or connection.’ • The presence of a watercourse/culvert onsite is noted on historic mapping. The client should consult historic mapping providers where necessary.	Appendix G
Canal & River Trust	A flood information request was submitted to obtain further flood information and policy guidance. The response included: • Lock 13 at Crabtree Lane has a by-wash culvert to pass water from the upstream pound to the downstream pound. This will need protecting from damage and, depending how close the works on site are and what they entail, we may ask for a pre and post construction survey of this culvert to ensure no damage has been sustained. • There are no reports of overtopping in the immediate vicinity. It’s worth noting that as this is an active lock flight in an urban area it may be vulnerable to misuse and we may not be made aware of every overtopping incident. • There are no breach analysis or modelled flood outlines for that section of canal	Appendix I

4 SOURCES OF FLOOD RISK

4.1 Criteria

In accordance with the NPPF¹ and advice from the EA, a prediction of the flood sources and levels is required along with the effects of climate change from the present for the design life of the development (in this case assumed to be 100 years).

Changes to climate change guidance in July 2021 indicate that increased allowances in peak river flow and rainfall intensity should now be incorporated within any assessment. The appropriate allowance for peak river flow is based on the site's location in the country, the lifetime of development, the relevant flood zone and the vulnerability of the proposed end use.

The flood risk elements that need to be considered for any site are defined in BS 8533 as the "Forms of Flooding" and are listed as:

- Flooding from rivers (fluvial flood risk);
- Flooding from the sea (tidal flood risk);
- Flooding from the land;
- Flooding from groundwater;
- Flooding from sewers (sewer and drain exceedance, pumping station failure etc); and
- Flooding from reservoirs, canals and other artificial structures.

The following section reviews each of these in respect of the subject site.

4.2 Definitions of Risk

Table 4.1: Flood Map for Planning Risk Zoning

Flood Zone	Description
Flood Zone 1	Land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%)
Flood Zone 2	Flood Zone 2 - land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year
Flood Zone 3	Land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.
Flood Zone 3b	Land having the potential to flood for storm events up to the 1 in 20 year return period (>5% annual probability of flooding occurring). It is classified as 'functional floodplain'

Table 4.2: Flood Risk from Rivers or the Sea and Flood Risk from Surface Water

Flood Risk	Description
High	High risk means that each year this area has a chance of flooding of greater than 3.3%. This takes into account the effect of any flood defences in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped, or fail.
Medium	Medium risk means that each year this area has a chance of flooding of between 1% and 3.3%. This takes into account the effect of any flood defences in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped, or fail.
Low	Low risk means that each year this area has a chance of flooding of between 0.1% and 1%. This takes into account the effect of any flood defences in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped, or fail.
Very Low	Means that each year this area has a chance of flooding of less than 0.1%. This takes into account the effect of any flood defences in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped, or fail.

Table 4.3: Flood Risk category matrix from Reservoirs, Groundwater, sewers and other artificial sources

Threat Probability	Low Impact	Medium Impact	High Impact
High	Medium	Medium	High
Medium	Low	Medium	Medium
Low	Low	Low	Medium
Very Low	Very Low		

4.3 Flooding from rivers (fluvial flood risk)

4.3.1 Main river

The EA Flood Zone mapping study for England and Wales is available on their website at: <https://flood-map-for-planning.service.gov.uk>.

In December 2013, the EA released an additional form of mapping 'Risk of Flooding from Rivers and Sea', which is available at:

<https://flood-warning-information.service.gov.uk/long-term-flood-risk>

The site is shown to be in Flood Zone 1 on the Environment Agency Flood Map for Planning (**Figure 4.1**). The latest 'Risk of Flooding from Rivers and Sea' flood map (**Figure 4.2**), which shows the Environment Agency's assessment of the likelihood of flooding from rivers and the sea at any location and is based on the presence and effect

of all flood defences, predicted flood levels, and ground levels, indicates that the majority of the site is considered to be at **'very low'** risk of flooding.

4.3.2 Climate change

Fluvial flooding is likely to increase as a result of climate change. A greater intensity and frequency of precipitation is likely to raise river levels and increase the likelihood of a river overtopping its banks. The Environment Agency has not supplied any modelled scenarios of flooding as a result of climate change for the site. Given the site is within Flood Zone 1 and a large distance from the nearest area Flood Zone 2 and 3 then it is expected that climate change will have a negligible impact on fluvial flood risk to the site.

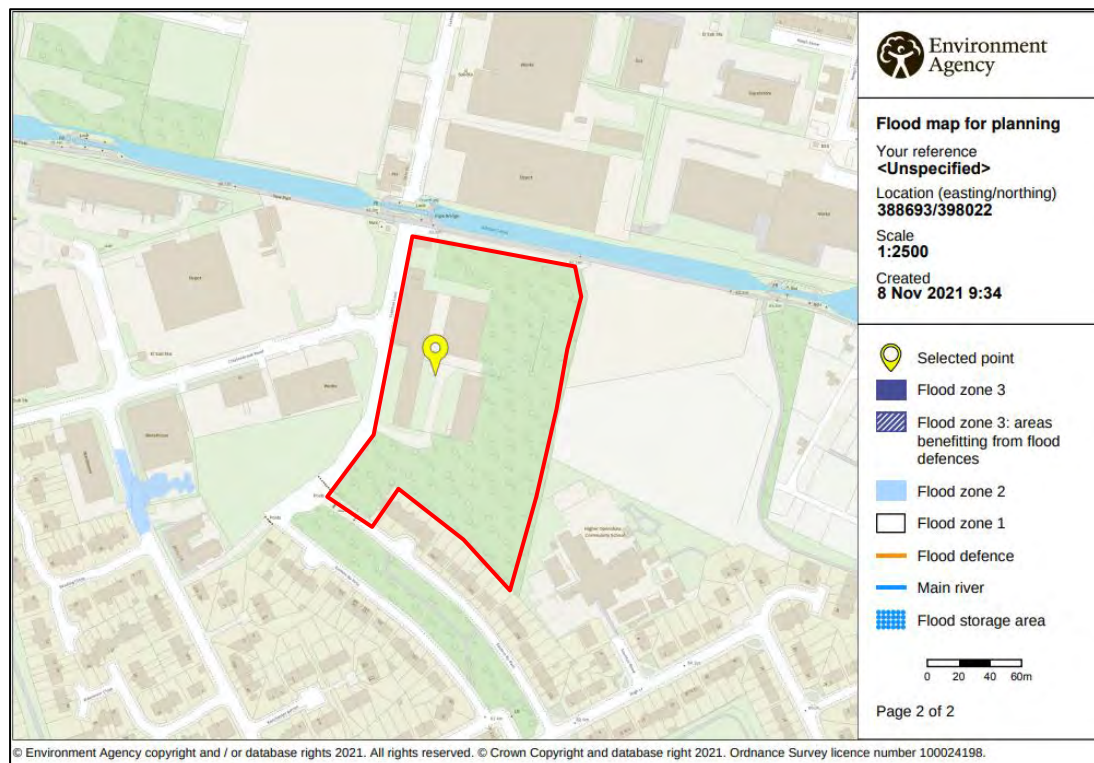


Figure 4.1: Environment Agency 'Flood map for planning'

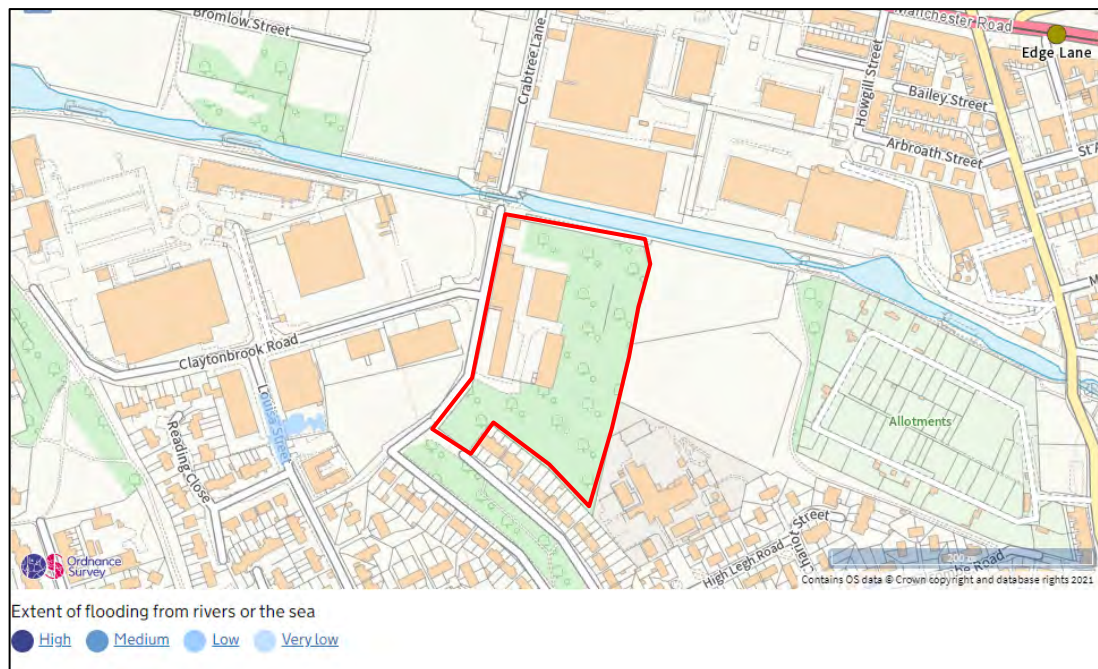


Figure 4.2: Environment Agency 'Flood risk from rivers or the sea' map (accessed November 2021)

4.3.3 Ordinary Watercourse

There is a culverted ordinary watercourse thought to cross the site and enter manhole 6902, there are no further details provided for the culverted watercourse and the existence of an upstream culvert has not been confirmed. Risk to the site will be increased if there are additional manholes for the watercourse found on site as these have the potential to surcharge and flood the immediate land.

If blockages of the watercourses downstream of manhole 6902 were to occur then manhole 6902 may surcharge. This would cause flooding of the land around the manhole and may result in an overland flow route through the site, most likely flowing in a southwards direction.

The existence of the culvert will need to be confirmed to further assess the flood risk. A survey should determine the route, design and condition of the culvert upstream from manhole 6902. An inspection of the culvert pre and post construction should be undertaken to assess no damage has been caused to the culvert.

The upstream extent of the catchment discharging to the watercourse is unknown. The proximity of the canal may suggest there may be some connectivity to the canal such as an overflow.

The culverted watercourse outside of the western boundary in Crabtree Lane and flowing to Claytonbrook Road is unlikely to be a risk to the site. Surcharging of the manholes will lead to the flooding of the highway which will convey flows southwards and not onto the site.

As there is no available information for the ordinary watercourses, it is therefore considered **Medium** risk. This can be revised as further details on the watercourse are provided from surveying works.

4.4 Flooding from the sea (tidal flood risk)

The site is not considered to be at risk from tidal flooding due to its inland location and elevated position indicating a '**very low**' risk of flooding.

4.4.1 Climate change

Climate change is not considered to result in an increased risk of tidal flooding to the site.

4.5 Flooding from the land (overland pluvial flood risk)

If intense rain is unable to soak into the ground or be carried through manmade drainage systems, for a variety of reasons, it can run off over the surface causing localised floods before reaching a river or other watercourse.

Generally, where there is impermeable surfacing or where the ground infiltration capacity is exceeded, surface water runoff can occur. Excess surface water flows from the site are believed to drain naturally to the local water features, either by overland flow or through infiltration.

The EA's surface water flood map (**Figure 4.3**) shows the site is predominately at a very low risk from pluvial flooding. However, there are two isolated areas of surface water flood site according to this mapping.

At the eastern boundary there is an area low risk of surface water flooding with a minor extent of medium risk of surface water flooding. The depth mapping suggests both the medium risk and low risk extents are expected to be below 300mm in depth. Velocity mapping suggests the risk originates on site and is not part of an overland flow route through the site.

At the southern boundary there is a low risk overland flow route which crosses the boundary. The mapping suggests the route originates from surface water flooding in the rear gardens of the houses along Eastern Bypass. Depth mapping suggests the flooding is below 300mm in depth.

Outside of the eastern boundary in the undeveloped field is an extensive area of surface water flooding for all return periods. The area at risk abuts against the east boundary suggesting some form of physical barrier or elevation different protects the site from flooding. It is recommended the ground level differences between the area on site and off site are considered as part of the development as not to allow flooding to cross the boundary.

The Level 2 SFRA (2011) suggests a larger extent of surface water flooding on site as a result of surface water modelling undertaken for the purpose of the study. The SFRA outlines a separate methodology to that used for the national flood mapping. Such differences includes using a modified elevation model which includes roads and building and modifying rainfall inputs for areas dependent upon greenfield or developed land use.

The SFRA mapping suggests low susceptibility to surface water flooding for a large extent of the eastern boundary and around the existing buildings on site.

The risk of surface water flooding to the development is considered to be typically **Very low**.



Figure 4.3: Environment Agency 'Flood risk from surface water' map (accessed November 2021)

4.5.1 Climate change

Surface water flooding is likely to increase as a result of climate change in a similar ratio to fluvial flooding. Increased intensity and frequency of precipitation is likely to lead to reduced infiltration and increased overland flow. Climate change guidance for rainfall intensity has recently been updated by the EA in 2021.

The SFRA mapping for future risk suggests low susceptibility to surface water flooding for a large extent of the eastern boundary and around the existing buildings on site, and a minor area of medium susceptibility at the eastern boundary line. An extract from the mapping is shown in **Figure 4.4**. Therefore, given the risk at the eastern boundary, risk may increase to **medium** level as a result of climate change.

Revised allowances for climate change have been included in the drainage assessment (to follow).

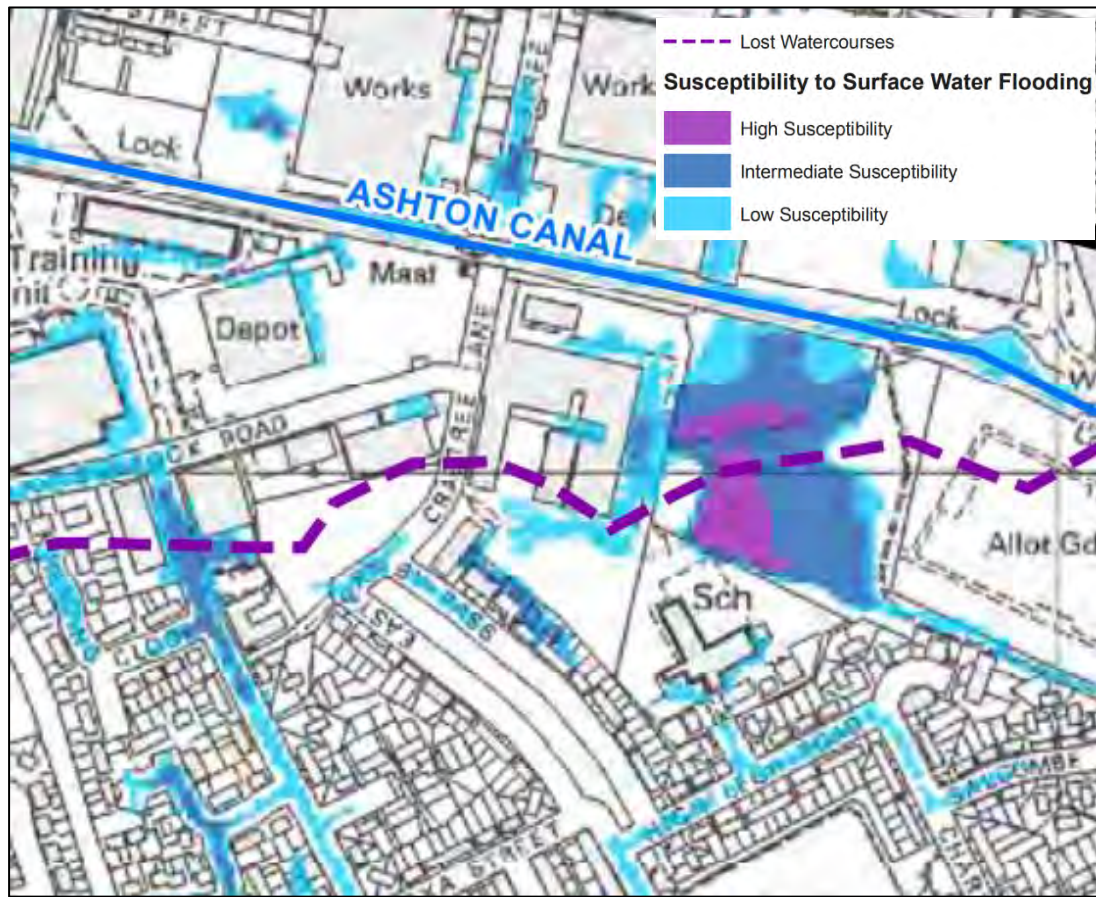


Figure 4.4: Susceptibility to Surface Water Flooding – Future Scenario (Extract taken from Manchester City, Salford City and Trafford Councils Levels 2 Hybrid SFRA, Drawing number SS_4.2F, JBA Consulting)

4.6 Flooding from groundwater

Groundwater flooding tends to occur after much longer periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends to flow from areas where the ground level is high, to areas where the ground level is low. In low-lying areas the water table is usually at shallower depths anyway, but during very wet periods, with all the additional groundwater flowing towards these areas, the water table can rise up to the surface causing groundwater flooding.

There is no evidence to suggest that Groundwater will be source of risk to the site. The SFRA (2011) indicates that the site is not within a flood risk area. Therefore, from the above information and due to the sporadic nature of groundwater flooding, the design of the development and the unlikely possibility of groundwater emergence at the site then the resultant groundwater flood risk is considered to be **very low**.

4.6.1 Climate change

Climate change could increase the risk of groundwater flooding as a result of increased precipitation filtering into the groundwater body. If winter rainfall becomes more frequent and heavier, groundwater levels may increase. Higher winter recharge may however be balanced by lower recharge during the predicted hotter and drier summers. This is less

likely to cause a significant change to flood risk than from other sources, since groundwater flow is not as confined. It is probable that any locally perched aquifers may be more affected, but these are likely to be isolated. The change in flood risk is likely to be low.

4.7 Flooding from sewers

Flooding from artificial drainage systems occurs when flow entering a system, such as an urban storm water drainage system, exceeds its conveyance capacity, the system becomes blocked or it cannot discharge due to a high water level in the receiving watercourse. A sewer flood is often caused by surface water drains discharging into the combined sewer systems; sewer capacity is exceeded in large rainfall events causing the backing up of floodwaters within properties or discharging through manholes.

Most adopted surface water drainage networks are designed to the criteria set out in Sewers for Adoption¹⁰. One of the design parameters is that sewer systems be designed such that no flooding of any part of the site occurs in a 1 in 30 year rainfall event. By definition a 1 in 100 year event would exceed the capacity of the surrounding sewer network as well as any proposed drainage.

When exceeded, the surcharged pipe work could lead to flooding from backed up manholes and gully connections. This could lead to immediate flooding within highways surrounding the site.

Sewer details have been outlined in Section 2.1.3 and have been obtained from topographic surveying (**Appendix B**) and United Utilities sewer records (**Appendix C**). The risk from manhole 6902 has been assessed within Section 4.3.3.

The foul wastewater manhole and sewer to the south of the site on Eastern By-pass is unlikely to be a source of flood risk to the site. The head of system is located at a lower elevation than the site and so surcharged exceedance flows will not flow onto the site.

Overall the flood risk from sewer flooding is considered **very low**.

4.7.1 Climate change

The impact of climate change is likely to be negative regarding flooding from sewers. Increased rainfall and more frequent flooding put existing sewer and drainage systems under additional pressure resulting in the potential for more frequent surcharging and potential flooding. This would increase the frequency of local sewer flooding but would not be significant in terms of the proposed development.

4.8 Other sources of flooding

4.8.1 Reservoirs

Flood events can occur from a sudden release of large volumes of water from reservoirs, canals and artificial structures.

The Environment Agency reservoir flood map (reproduced as **Figure 4.5**) shows the largest area that might be flooded if a reservoir were to fail and release the water it holds.

¹⁰ WRC, 'Sewers for Adoption' 8th Edition, August 2018

Since this is a prediction of a worst-case scenario, it is unlikely that any actual flood would be this large. There has been no loss of life in the UK from reservoir flooding since 1925. Since then reservoir safety legislation has been introduced to ensure reservoirs are maintained.

According to the Environment Agency Reservoir flood maps the site is not at risk of flooding from reservoirs. The resultant flood risk is considered to be **very low**.

Reservoirs can be managed over time, controlling inflow/outflow of water and therefore there is the capacity to control the effects of climate change. Increased rainfall has the potential to increase base flow, but this should be minimal. It is unlikely that there will be a substantial change to the risk of flooding for this site.

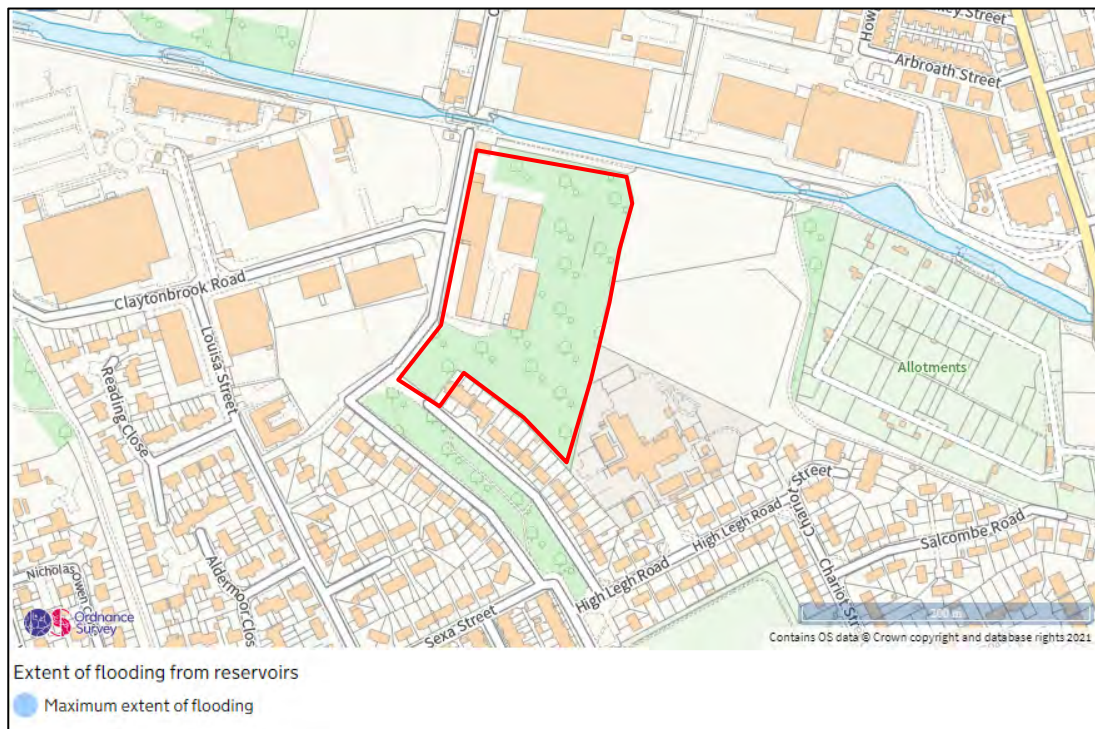


Figure 4.5: Environment Agency ‘Flood risk from reservoirs’ map (accessed November 2021)

4.8.2 Canals

There is a canal adjacent to the northern boundary of the site. The canal tow path ranges in height from 83.38mAOD (eastern extent) to 83.55mAOD (western extent). The canal water level at the date of the survey is recorded at 83.03mAOD.

The recorded canal water level is approximately level with the spot levels recorded along the northern boundary of the site. The tow path appears to act as a raised embankment between the site and the canal.

The SFRA (2011) indicates the risk of Aston Canal overtopping is generally considered low. The SFRA notes:

“The broad canals do not generally pose a direct flood risk as they are a controlled water body. Therefore the residual risk of canal flooding is usually associated with lower probability events such as overtopping and/or the breaching of embankments.”

The Canal Hazard Flood Mapping has been included in **Appendix J**, this shows the site is not considered to be at risk from canal flooding. However, as the C&RT response states (**Appendix I**), locks in urban areas may be subject to misuse and therefore risk cannot be ruled out. The risk from canal flooding is considered **low**.

4.8.3 Blockages of artificial drainage systems

There is a possibility that flooding may result due to culverts and/or sewers being blocked by debris or structural failure. This can cause water to backup and result in localised flooding, as well as placing areas with lower ground levels at risk.

The culverted watercourse on site is a potential source of flood risk if the culvert becomes blocked and surcharged manholes cause exceedance overland flow paths through the site. The condition of the culverts on site are unknown and therefore the risk from blockages cannot be assessed. This report assumes an appropriate easement will be provided for the culverted watercourse through the site and appropriate preconstruction and post construction surveying of the culvert to ensure no damage or blockages have occurred within the culvert. As the risk is associated with the ordinary watercourse for which there is no information then the risk is considered **high**.

5 PLANNING CONTEXT

5.1 Application of planning policy

Section 14 of the NPPF includes measures specifically dealing with development planning and flood risk using a sequential characterisation of risk based on planning zones and the EA Flood Map. The main study requirement is to identify the flood zones and vulnerability classification relevant to the proposed development, based on an assessment of current and future conditions.

5.2 Land use vulnerability

Planning Practice Guidance (PPG) includes a list of appropriate land uses in each flood zone dependent on vulnerability to flooding. In applying the Sequential Test, reference is made to Table 6.1 below, reproduced from Table 3 of PPG.

Table 5.1: Flood risk vulnerability and flood zone ‘compatibility’

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	Appropriate	Appropriate	Appropriate	Appropriate	Appropriate
	Zone 2	Appropriate	Appropriate	Exception Test Required	Appropriate	Appropriate
	Zone 3a	Exception Test Required	Appropriate	Should not be permitted	Exception Test Required	Appropriate
	Zone 3b functional floodplain	Exception Test Required	Appropriate	Should not be permitted	Should not be permitted	Should not be permitted

With reference to Table 2 of the PPG, the proposed development, based on its residential use, is classed as ‘More Vulnerable’. This classification of development is appropriate for areas within Flood Zone 1, with the exception test required for the development within Flood Zone 3. As the developable areas of the site are located wholly within Flood Zone 1, the sequential test is deemed to have been passed.

5.3 Sequential Test

The Sequential Test is required to assess flood risk and the PPG recommends that the test be applied at all stages of the planning process to direct new development to areas with the lowest probability of flooding (Flood Zone 1). The site therefore passes the sequential test and thus the exception test will not be required.

6 SURFACE WATER DRAINAGE ASSESSMENT

6.1 Scope

As the site is greater than 1ha in size, the EA requires such development to focus on the management of surface water run-off. This section discusses the potential quantitative effects of the development on both the risk of surface water flooding on-site and elsewhere within the catchment, as well as the type of potential SuDS features that could be incorporated as part of the masterplan.

In accordance with the Defra Non-Statutory Technical Standards, the surface water drainage strategy should seek to implement a SuDS hierarchy that aspires to achieve reductions in surface water runoff rates to greenfield rates. Where a reduction to the greenfield rate is not practicable, the proposed surface water drainage strategy should not exceed the existing runoff rate.

In addition, Building Regulations Part H¹¹ requires that the first choice of surface water disposal should be to discharge to an adequate soakaway or infiltration system, where practicable. If this is not reasonably practicable then discharge should be to a watercourse, the least favourable option being to a sewer (surface water before combined). Infiltration techniques should therefore be applied wherever they are appropriate.

6.2 Pre-development situation

The existing site area is 2.06Ha and considered previously developed land. The existing drainage of the site dictates the current hydrological regime with rain water down pipes and yard gullies draining runoff towards the either the combined sewer or culverted watercourse on site.

The impermeable area is equal to 21.4% (0.44ha) on the total site area (2.06ha), based on the existing hardstanding plan on the drainage strategy in **Appendix K**.

The pro-rata IoH 124 method¹² has been used to estimate the Greenfield surface water runoff for the permeable area (1.62Ha) of site, shown in **Table 7.1**. Greenfield runoff calculations are included in **Appendix L**.

¹¹ HM Government (2010 with 2013 amendments), 'The Building Regulations 2010: Approved Document H - Drainage and Waste Disposal (2002 Edition incorporating 2010 amendments)'

¹² Institute of Hydrology (IoH), 'Flood Estimation for small catchments - Report 124', 1994

Table 7.1: IOH 124 surface water runoff (greenfield) for 1.62Ha of developable land

Return period	Peak Flow (l/s)	Peak Flow per Ha (l/s/Ha)
QBar	10.75	6.64
1 in 1 year	9.36	5.78
1 in 30 year	18.28	11.29
1 in 100 year	22.37	13.38

Drainage surveying of the existing drainage infrastructure on site has been undertaken. A plan of the existing drainage infrastructure is included in **Appendix D**. The plan, and based on site observations, shows that rain water down pipes from the areas of rooftop likely drain to the 225mm diameter combined sewer which is aligned north to south through the site along the western boundary. Gullies within the yard of the existing site (marked as 'G' on the topographic survey in **Appendix B**) are likely to drain to the culverted watercourse which passes through the site aligned east to west.

As a developed site with existing surface water drainage, the pre-development surface water runoff from the site has been calculated using the Modified Rational method, shown in **Table 7.2**. The Modified Rational method uses the following equation to calculate peak runoff rate from the impermeable area:

$$Q = 2.78 C_v C_r i A$$

Where:

2.78 = Coefficient which accounts for the differences in units used for the inputs and the outputs of the equation.

C_v = Volumetric Runoff Coefficient - a co-efficient that describes the proportion of rainfall appearing in the surface water drainage system, assumed to be 0.95 for impermeable areas

C_r = Routing Coefficient - a routing co-efficient added to the Rational Method to represent runoff characteristics of a particular site or area in a more accurate manner, assumed to be 1.3 for urban areas

i = Rainfall Intensity (mm/hr) based on a 1 hour rainfall event

A = Area (ha)

Table 7.2: Modified Rational Method pre-development surface water runoff (0.44ha)

Return period	Rainfall Intensity (mm)*	Peak flow (l/s)	Modified Rationale Peak flow with 50% betterment (l/s)
QBar	12.99	19.62	9.81
1 in 1 year	10.11	15.27	7.64
1 in 30 year	31.79	48.02	24.01
1 in 100 year	44.24	66.83	33.42

*Rainfall modelling for point data at 388686,398062

The total runoff from the site from the greenfield and brownfield areas is summarised in **Table 7.3**.

Table 7.3: Total runoff from the site

Return period	Brownfield runoff (0.44Ha)	Greenfield Runoff (1.62ha)	Total Site Runoff
QBar	19.62	10.75	30.37
1 in 1 year	15.27	9.36	24.63
1 in 30 year	48.02	18.28	66.3
1 in 100 year	66.83	22.37	89.2

6.3 Off-site discharge options and limits

6.3.1 Infiltration

Infiltration should be considered as the primary option to discharge surface water from the developed site. The effectiveness of infiltration is completely dependent on the physical conditions at the site. Potential obstacles include:

- Local variations in permeability preventing infiltration – the superficial geology is shown on BGS mapping as till indicating the potential for cohesive geology and consequently poor infiltration rates;
- Shallow groundwater table - For infiltration drainage devices, Building Regulation approved document H states that these “should not be built in ground where the water table reaches the bottom of the device at any time of the year”. Groundwater is not considered to be an issue, however this should be investigated.
- Source Protection Zones - The site is not located within a Groundwater Source Protection Zone.

Based on the information available, infiltration based SuDS are unlikely to be suitable due to the cohesive nature of till superficial geology. As a previously developed site there may be a significant depth of Made Ground which will not be a suitable infiltration medium.

6.3.2 Discharge to watercourse

There are two culverted watercourses which the potential to discharge into, the 600mm diameter culverted watercourse which intersects the site, or the 225mm diameter culverted watercourse outside of the western boundary.

6.3.3 Discharge to surface water sewer

Discharge to surface water sewer is not considered feasible as the surrounding sewers are predominantly foul and combined sewers. United Utilities have confirmed the sewer crossing the site is a culverted watercourse

6.4 Post-development situation

The proposed development will increase impermeable areas (based on existing total site area), which, if unmitigated, will result in an increase in surface water runoff across the site. It will therefore be necessary to manage surface water on-site in order to limit the discharge of surface water off-site to an agreed rate (as above), to provide sufficient on-site attenuation up to the 1 in 100 year climate change rainfall event and to provide improvements to water quality through appropriate source treatment.

It is proposed to provide a surface water drainage strategy which will discharge to the 600mm diameter culverted watercourse.

6.4.1 Discharge Rate

The total runoff from the site for permeable and impermeable areas is included in **Table 7.4**, this includes a 50% betterment provided on Brownfield rates, in line with the Local Flood Risk Management Strategy¹³. It is proposed to discharge at a maximum of QBAR rates which equates to **20.56l/s** for all events up to the 1 in 100 year plus 45% climate change.

Table 7.4: Total surface water runoff from development site

Return period	Modified Rationale Peak flow with 50% betterment (l/s)	Greenfield Runoff Rates (l/s)	Total Site Surface Water Runoff (l/s)
QBar	9.81	10.75	20.56

6.4.2 Proposed drainage strategy

The proposed drainage strategy outlines the following detail regarding surface water drainage as shown on the drainage layout in **Appendix K**:

¹³ Local Flood Risk Management Strategy, Manchester City Council, March 2014

- Following the SuDS Hierarchy, infiltration based methods of surface water disposal are unlikely to be feasible due to cohesive geology type and is therefore discounted;
- Surface water runoff will discharge to the 600mm diameter culverted watercourse which intersects the site, this is shown to be achievable with gravitational drainage;
- Surface water discharge is to be restricted to a maximum rate of 20.56l/s as per Manchester LLFA requirements, this includes a 50% betterment on brownfield rates from existing developed areas;
- Attenuation for the 100 year plus 45% climate change is to be achieved in oversized pipes and geocellular crates as per the drainage strategy calculations in **Appendix M**;
- Consent should be gained from the LLFA or EA should any works be required near to the watercourses as part of the development.

7 CONCLUSIONS AND RECOMMENDATIONS

This FRA complies with the NPPF and Planning Practice Guidance and demonstrates that flood risk from all sources has been considered in the proposed development. It is also consistent with the Local Planning Authority requirements with regard to flood risk.

The whole development lies in an area designated by the EA as Flood Zone 1, outlined to have a chance of flooding of less than 1 in 1,000 (<0.1%) in any year.

NPPF sets out a Sequential Test, which states that preference should be given to development located within Flood Zone 1. This flood risk assessment demonstrates that the requirements of the Sequential Test have been met, with the developable area of the site located within Flood Zone 1 and 'More Vulnerable' classification of the development.

This flood risk assessment has considered multiple sources of flooding and concluded the following:

Table 7.1: Flood risk summary

Source		Level of risk	Mitigation
Fluvial	Main River	Very Low	Developable area is shown to be wholly within Flood Zone 1. However, a culverted ordinary watercourse is thought to cross the site for which there is no information to suggest the watercourse will not be a risk to the site. Therefore a medium risk is considered.
	Ordinary Watercourse	Medium	
Tidal		Very Low	The site is inland and elevated.
Surface water		Very Low-Medium	There is some minor surface flooding on site though this is shown on mapping as below 300mm in depth. Mapping suggests this risk may increase with climate change
Groundwater		Very Low	Whilst the SFRA shows the site is not within a risk area of groundwater flooding, the groundwater levels are unknown, it is recommended this is investigated further.
Sewers		Very Low	Sewer records indicated there is a combined sewer head of run to the south of the site. The sewer is not considered a flood risk to the site.
Reservoir		Very Low	The site is not within an area of reservoir flooding.
Canal		Low	A canal is present outside of the northern boundary of the site. Overtopping is not considered likely but cannot be ruled out. Therefore risk is considered low.

Source	Level of risk	Mitigation
Artificial sources	High	Flood risk from blockages will be closely related to the condition of the ordinary watercourse through the site. As the condition is unknown then risk is considered high.

Overall, taking into account the above points, the development of the site should not be precluded on flood risk grounds.



APPENDIX A

RSK GROUP SERVICE CONSTRAINTS

1. This report and the drainage design carried out in connection with the report (together the "Services") were compiled and carried out by RSK LDE Ltd (RSK) for MCI Developments (the "client") in accordance with the terms of a contract between RSK and the "client". The Services were performed by RSK with the skill and care ordinarily exercised by a reasonable civil engineer at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the client.
2. Other than that expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.
3. Unless otherwise agreed in writing, the Services were performed by RSK exclusively for the purposes of the client. RSK is not aware of any interest of or reliance by any party other than the client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. Any such party would be well advised to seek independent advice from a competent environmental consultant and/or lawyer.
4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date of this report, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.
5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.
6. The observations and conclusions described in this report are based solely upon the Services, which were provided pursuant to the agreement between the client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials.
7. The Services are based upon RSK's observations of existing physical conditions at the site gained from a walk-over survey of the site together with RSK's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The Services are also based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely. The Services clearly are limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the walk-over survey. Further RSK was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the client and RSK.
8. The phase II or intrusive environmental site investigation aspects of the Services is a limited sampling of the site at pre-determined borehole and soil vapour locations based on the operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and RSK] [based on an understanding of the available operational and historical information,] and it should not be inferred that other chemical species are not present.
9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (boreholes, trial pits etc) annotated on site plans are not drawn to scale but are centred over the appropriate location. Such features should not be used for setting out and should be considered indicative only.



APPENDIX B

TOPOGRAPHIC SURVEY



APPENDIX C

SEWER RECORDS

M.C.I. Developments Limited

**15
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WN3 6PR**

FAO:

How to contact us:

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

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

**Your Ref: WSF Crabtree Lane
Our Ref: UUPS-ORD-269352
Date: 15/04/2021**

Dear Sirs

Location: Crabtree Lane

I acknowledge with thanks your request dated 12/04/2021 for information on the location of our services.

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

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

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

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

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

Yours Faithfully,



Karen McCormack
Property Searches Manager

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

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

TERMS AND CONDITIONS:

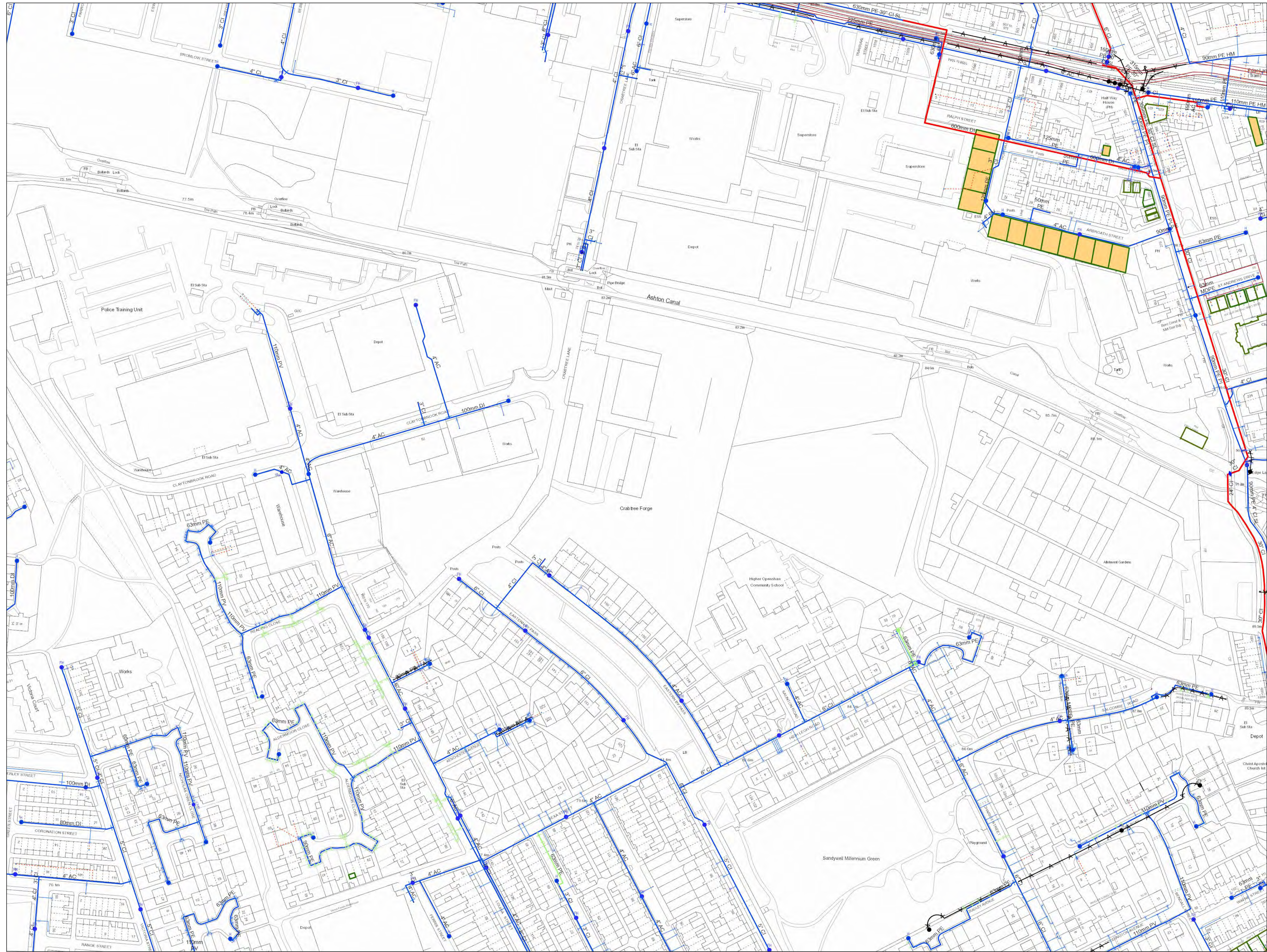
- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.



Refo	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
5703	76.78	CO	69.53	375			VC	40.44502	1 in 94
5709	74.6	FO	71.92	150			VC	13.51704	1 in 150
5819		CO	68.75	150			VC	4.77231	1 in 153
4705	74.29	SW	72.71	225			VC	33.66479	1 in 153
4514	70.53	FO	68.51	150			VC	18.03077	1 in 38
7704	79.51	CO	72.68	150			VC	43.82821	1 in 129
8800	83.93	CO	80.43	300			VC	59.94164	1 in 100
6202	79.67	SW	77.49	225			VC	28.59892	1 in 148
7600	78.65	CO	76.5	230			VC	23.70654	1 in 0.31927998
5811		FO	78.1	100			VC	5.573594	1 in 1287
6201	82.5	CO	78.41	300			VC	51.46874	1 in 1287
5904	77.07	SW	75.36	225			VC	16.29075	1 in 49
5801	77.27	CO	71.13	150			VC	9.848858	1 in 39
5002	78.37	SW	75.56	225			VC	33.95985	1 in 153
4904	74.49	FO	71.88	150			VC	22.94392	1 in 167
5711	74.47	SW	72.48	225			VC	43.45028	1 in 103
9800	84.39	CO	82.09	225			VC	45.1985	1 in 135
9801	86.07	CO	83.51	300			VC	60.89175	1 in 134
6202	83.28	CO	78.65	300			VC	50.98304	1 in 135
9309	88.77	CO	87.56	225			VC	52.39275	1 in 179
6803	78.76	CO	75.83	230			VC	44.29447	1 in 221
7705	80.67	CO	76.76	300			VC	34	1 in 179
4807	74.66	SW	72.01	300			VC	59.02091	1 in 227
5812		FO	0	100			VC	6.079007	1 in 103
7803	81.41	CO	79.86	230			VC	45.17743	1 in 146
5801	74.48	FO	70.83	150			VC	16.65341	1 in 66
6000		SW	72.6	150			VC	29.42788	1 in 2
5805	74.56	SW	72.6	150			VC	44.63219	1 in 60
5307	81.42	SW	79.32	225			VC	6.09902	1 in 105
9805		CO	82.09	225			VC	8.826956	1 in 319
7206	83.63	CO	79.34	225			VC	12.5452	1 in 105
7700	82.12	CO	79.76	300			VC	27.29469	1 in 104
5807	74.42	SW	72.19	300			VC	25.45002	1 in 100
9101	87.36	CO	86.07	225			VC	20.39008	1 in 40
5003	78.59	CO	77.21	225			VC	7.78049	1 in 134
4803	74.76	FO	71.08	150			VC	9.345306	1 in 179
4905	74.76	SW	71.59	375			BR	17.584	1 in 440
9804		CO	82.09	225			VC	17.39311	1 in 27
4003	77.65	SW	74.84	225			VC	16.02778	1 in 179
8814		CO	70.51	675			CO	16.12452	1 in 146
5701	77.35	CO	70.51	675			CO	47.01064	1 in 55
6803		SW	71.55	375			VC	7.440547	1 in 351
4901	77.45	CO	72.82	375			VC	31.7605	1 in 146
4910	74.55	SW	71.55	375			BR	14.05842	1 in 351
6815		CO	72.6	150			VC	11.48368	1 in 146
9819		CO	82.09	225			VC	22.46766	1 in 146
7205	83.57	CO	78.92	225			VC	11.2715	1 in 62
6102	83.43	CO	80.19	300			VC	13.0384	1 in 62
4001	77.45	CO	72.62	225			CO	68.68554	1 in 55
6816		CO	72.62	150			VC	6.715095	1 in 114
6807		CO	72.62	150			VC	8.876524	1 in 70
7702	80.15	CO	77.33	230			VC	45.17743	1 in 70
6904		SW	79.99	600			VC	22.02271	1 in 76
6101	83.22	CO	79.99	300			VC	61.39218	1 in 104
9700	86.25	CO	84.58	300			VC	85	1 in 100
4911	74.6	SW	72.9	225			VC	43.61435	1 in 21
8314	85.51	CO	82.24	300			VC	9.952541	1 in 114
6903	82.47	SW	79.41	225			VC	39.15522	1 in 76
9701	86.7	CO	83.76	300			VC	63.95311	1 in 114
6705	79.17	CO	77.88	230			VC	45.65095	1 in 114
6713		CO	77.88	230			VC	12.78175	1 in 54
4204	79.01	CO	77.73	225			VC	38.83298	1 in 270
6704	78.67	CO	76.1	375			VC	37.74723	1 in 116
9205	87.54	CO	83.7	300			VC	11.40175	1 in 116
7800	81.44	CO	76.23	230			VC	63.82006	1 in 116
4900		CO	0	225			VC	88.54378	1 in 203
6905		SW	79.99	600			VC	108.1897	1 in 151
7801	82	CO	75.85	380			VC	34.48188	1 in 151
4004	77.67	CO	74.85	225			VC	17.05834	1 in 100
4906	74.31	SW	72.37	150			BR	18.16051	1 in 86
5205	81.27	CO	77.11	300			VC	48.08326	1 in 124
4909	74.4	SW	71.1	950			BR	32.38168	1 in 86
4806	74.78	SW	71.75	300			BR	13.69852	1 in 52
5001	79.08	SW	76.47	225			VC	47.53946	1 in 144
6817		CO	72.6	150			VC	19.58383	1 in 144
4801	74.69	FO	71.66	150			VC	24.53071	1 in 144
6702	77.94	CO	0	225			VC	52.27692	1 in 144
5717		SW	72.6	150			VC	19.98179	1 in 144
6802		SW	72.6	150			VC	52.75668	1 in 144
6004	79.6	CO	78.57	225			VC	50.59644	1 in 144
4902	74.55	CO	68.83	375			VC	46.15862	1 in 144
5808	74.58	SW	72.9	225			VC	41.91187	1 in 63
6706	78.52	CO	77.07	230			VC	45.17743	1 in 0.6026284
5203	88.55	CO	86.61	225			VC	22.56103	1 in 14
4704	74.36	FO	72.43	150			VC	34.5785	1 in 150
7202	83.59	CO	79.3	300			VC	7.86095	1 in 254
5803	77.38	CO	70.73	300			VC	45.21818	1 in 4522
7606	80.36	CO	76.55	300			VC	67.08204	1 in 120
6704	78.36	CO	75.51	300			VC	56.79789	1 in 123
7201	83.79	CO	79.17	300			VC	50.648	1 in 724
6804		CO	72.6	150			VC	18.75428	1 in 1
5904	77.07	SW	70.45	950			BR	68.83718	1 in 1
9206		CO	82.09	225			VC	6.504496	1 in 38
4954	72.66	SW	70.9	150			VC	20.28807	1 in 38
5715		CO	72.2	150			PVC	14.6303	1 in 147
4701	76.67	CO	68.96	375			VC	25.63201	1 in 233
5707	73.49	FO	72.2	150			VC	41.11518	1 in 147
6818		CO	72.2	150			VC	12.55935	1 in 18
6703	79.84	CO	78.56	225			VC	44.28318	1 in 45
4002	77.41	SW	72.21	225			VC	75.00158	1 in 53
5202	81.25	SW	80.51	225			VC	62.58594	1 in 38
9202	88.15	CO	86.79	225			VC	65.9942	1 in 155
5806	74.44	FO	71.83	150			VC	26.35326	1 in 147
4904	74.14	FO	71.01	150			VC	55.92413	1 in 123
7601	79.31	CO	76.31	300			VC	45.65085	1 in 173
9800	77.39	CO	71.34	300			VC	38.35932	1 in 173
6205	83.31	CO	78.82	300			VC	4.472136	1 in 381
5710	74.59	SW	72.23	300			VC	14.44217	1 in 153
4802	74.63	FO	71.49	150			VC	62.88441	1 in 110
6901	80.46	CO	77.08	230			VC	91.67879	1 in 37
5714		FO	150				VC	6.424744	1 in 12
9800	85.14	CO	82.92	300			VC	91.35889	1 in 102
7703	79.85	CO	78.6	230			VC	27.73885	1 in 102
5204	80.5	CO	76.61	300			VC	46.87217	1 in 328
6707	79.62	CO	0	300			VC	30.88689	1 in 10
9102	86.66	CO	83.82	300			VC	42.27934	1 in 89
9201	88.71	CO	82.82	300			VC	65.50478	1 in 235
6902	77.14	CO	0	300			VC	60.96033	1 in 10
4808	74.57	SW	72.11	300			VC	23.50743	1 in 10
9803		CO	82.09	225			VC	17.85516	1 in 10
8220		CO	0				VC	2.514781	1 in 10
6700	78.63	CO	74.97	375			VC	45.65085	1 in 10
5905		CO	75.08	300			PVC	13.39317	1 in 89
4203	78.04	CO	75.08	300			VC	49.0323	1 in 89
6808		CO	75.08	300			VC	3.940208	1 in 89
5712		FO	100				VC	8.928234	1 in 105
6929		CO	150				VC	14.23468	1 in 105
5903		CO	100				PVC	3.015304	1 in 105
6800	80.38	CO	77.48	230			VC	35.60595	1 in 105
4707		CO	100				VC	5.870307	1 in 105
6711		CO	150				VC	6.447042	1 in 105
8818		CO	150				VC	10.60917	1 in 105
7802	81.28	CO	75.46	380			VC	90.35186	1 in 182
6817		CO	70.7	300			VC	10.95667	1 in 68
5700	77.38	CO	70.7	300			VC	64.25729	1 in 56
5702	77	CO	0	300			VC	9.848658	1 in 56
6701	77.42	CO	70.33	380			VC	43.96948	1 in 56
5807		CO	100				PVC	13.97262	1 in 56
8824		CO	150				VC	18.78431	1 in 137
4706		CO	100				VC	7.706321	1 in 137
4205	79.3	CO	78.85	225			VC	7.29011	1 in 137
6800	79.81	CO	77.89	230			VC	53.41348	1 in 137
6827		CO	76.12	300			VC	5.31039	1 in 137
4206	79.67	CO	76.12	300			VC	49.48029	1 in 137
5816		CO	150				VC	3.950123	1 in 137
6807		CO	150				VC	5.910715	1 in 137
6801	80.93	CO	76.93	230			VC	71.79691	1 in 137
6809		CO	100				PVC	3.841551	1 in 137

LEGEND

Abandoned</



LEGEND

Proposed	Abandoned	Live



APPENDIX D

DRAINAGE SURVEY MAP

[illegible]



APPENDIX E

UNITED UTILITIES PRE-APPLICATION ADVICE

Ryan Whitfield

From: Perry, Graham <Graham.Perry@uuplc.co.uk>
Sent: 02 November 2021 21:09
To: Ryan Whitfield
Cc: Wastewater Developer Services
Subject: Pre Development Enquiry for : Crabtree Lane, M11 1BR UU reference Number : 4200044541

Follow Up Flag: Follow up
Flag Status: Flagged

Pre Development Enquiry for: Crabtree Lane, M11 1BR UU reference Number : 4200044541

For future reference we now have a new wastewater pre-development enquiry form designed to be easier and more user friendly which is available on our website via the following link:

<https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/wastewater-pre-dev/>

We have carried out an assessment of your application which is based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your drainage strategy will need to be reviewed by other competent authorities as part of the planning process, and we advise that you carry out the necessary site investigations to confirm the viability of your proposals.

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 3723223 or refer to the link below:

<https://www.unitedutilities.com/builders-developers/working-near-our-assets/>

Foul Water

Foul flow from this site will be allowed to drain into the public foul water/combined sewer system.

Our preferred point of discharge would be to the 230mm diameter public combined sewer within Eastern Bypass located to the south of your proposed development at an unrestricted rate.

If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability. Please be aware the combined system to the east is heavily surcharged and may need finished floor levels raising if you are looking to drain to that system

Surface Water

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

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

This is outlined as follows, in order of priority:

1. into the ground (infiltration);
2. to a surface waterbody;
3. to a surface water sewer or highway drain;
4. to a combined sewer.

For guidance, The **North West SuDS Pro-Forma** provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.

The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).

The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

Infiltration

Surface water runoff generated from this development should discharge to the ground via infiltration system where feasible.

A detailed evidence based feasibility assessment must be carried out in line with Chapter 25 of the CIRIA SuDS Manual 2015 to determine whether infiltration is a suitable method of surface water disposal.

Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website:

<https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs>

If your site is in a Groundwater Source Protection Zone, you should have regard to the Environment Agency's approach to Groundwater Protection. Information on this is available via the link below:

<https://www.gov.uk/government/publications/groundwater-protection-position-statements>

Please note that such a location could have implications for the principle of your development and the need for additional mitigating measures to protect the groundwater environment and public water supply in the detailed design of your site.

Waterbody

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to the culverted watercourse crossing the site. Alternatively you may want to drain to the Ashton canal to the north

We would encourage you to identify and engage with any third party landowner and riparian owner to agree access and discharge rights to the water body if this is not in your ownership.

As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

Levels

For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Land drainage / Overland flows / track drainage

United Utilities have no obligation, and furthermore we do not accept land drainage, overland flows or track drainage into the public sewerage network under any circumstances

Existing Wastewater Assets Crossing the Site

We have reviewed our records and can confirm that there does not appear to be any charted public sewers located within the boundary of proposed development. However, due to the accuracy of the records and the public sewer transfer legislation in 2011, not all public sewers are shown on our records so we would ask that you proceed with caution and carry out your own site investigation works. If any uncharted sewers are identified while carrying out your works we would ask that you contact United Utilities at the earliest opportunity so that we can offer guidance and update our records.

Please refer to the link below to obtain full details of the processes involved with sewer diversions:

<https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-diversions/>

Existing Water Assets Crossing the Site

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address:

DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:

<https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/water-pre-dev/>

Connection Application

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:

<https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-connections/>

We recommend that the detailed design should confirm the locations of all utilities in the area and ensure that any proposed drainage solution considers routing and clash checks where required.

If we can be of any further assistance please don't hesitate to contact us further.

Kind regards,



Graham Perry
Development Engineer
Developer Services
M: 07557 577548
T: 01925 679405
unitedutilities.com

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APPENDIX F

ENVIRONMENT AGENCY MAPPING

Ryan Whitfield

From: GMMC Info Requests <InfoRequests.GMMC@environment-agency.gov.uk>
Sent: 13 August 2021 13:14
To: Ryan Whitfield
Subject: GMMC228963AB Response attached from the Environment Agency
Attachments: CrabtreeLane_SiteBoundary.JPG; GMMC228963AB 1.png; GMMC228963AB 2.png; GMMC228963AB 3.png

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Ryan,

Re: Flood Data Request - Crabtree Lane, Openshaw

Thank you for your enquiry which was received on 6/8/21.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

This site is located in Flood Zone 1. We have no detailed modelling within the area, but Ashton Canal runs to the North of the site. We advise you to contact the Canal & River Trust to gain flood risk information from this regarding the Canal.

The Groundwater team do not hold records on groundwater flooding; groundwater flooding is the responsibility of the Lead Local Flood Authority

For further information please see below

Local authorities search
<https://www.gov.uk/find-your-local-council>

Local authorities – new roles and responsibilities
<http://www.defra.gov.uk/environment/flooding/legislation/la-roles/>

We do have a record of a culverted watercourse just south of the site boundary. Please see the attachment GMMC228963AB 1. Unfortunately however this is a minor watercourse, and our records indicate this may in fact be part of the sewer network. Looking at the sewer network at this location (GMMC228963AB 2) it looks like the minor watercourse is indeed part of the sewer network, therefore we advise contacting United Utilities for further information in this instance.

Please refer to the [Open Government Licence](#) which explains the permitted use of this information.

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Kind regards,

Anne Ball
Customer and Engagement Officer
Greater Manchester, Merseyside and Cheshire
Email: Inforequests.gmmc@environment-agency.gov.uk

From: Ryan Whitfield [<mailto:RWhitfield@rsk.co.uk>]
Sent: 06 August 2021 10:40
To: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Subject: 210811/ER07 Flood Data Request - Crabtree Lane, Openshaw

Good morning,

Please can you provide flood information for the address below:

Site Name:
Crabtree Lane, Manchester, Greater Manchester, M11 1BR

Site National Grid Reference: 388686 E, 398056N

A canal flows close to the northern boundary of the site. Please can you provide the following information, if available:

- Confirmation of the site's Flood Zone designation,
- Flood flows and levels for a range of any available return periods
- Information on the recently published climate change guidance for this area and how this may impact on the data available for the area,
- Any relevant P5,P6 and P7 data, Information on surface water flood risk including flow pathways and depths,
- Information on historic flooding,
- Information on flood defences and assets in the area, if any,
- Any data on existing surface water discharges to the surrounding watercourses,
- Any data on groundwater flooding,
- Any information on reservoir flooding; and,
- Any information on culverted watercourses or private sewers which you know of which do not show up on the public sewer records.

Kind regards,

Ryan Whitfield
Hydrologist BSc(Hons) MSc MCIWEM

RSK
Land & Development Engineering
14, Beecham Court, Pemberton Business Park, Wigan, UK, WN3 6PR

Switchboard: +44 (0) 1942 493255

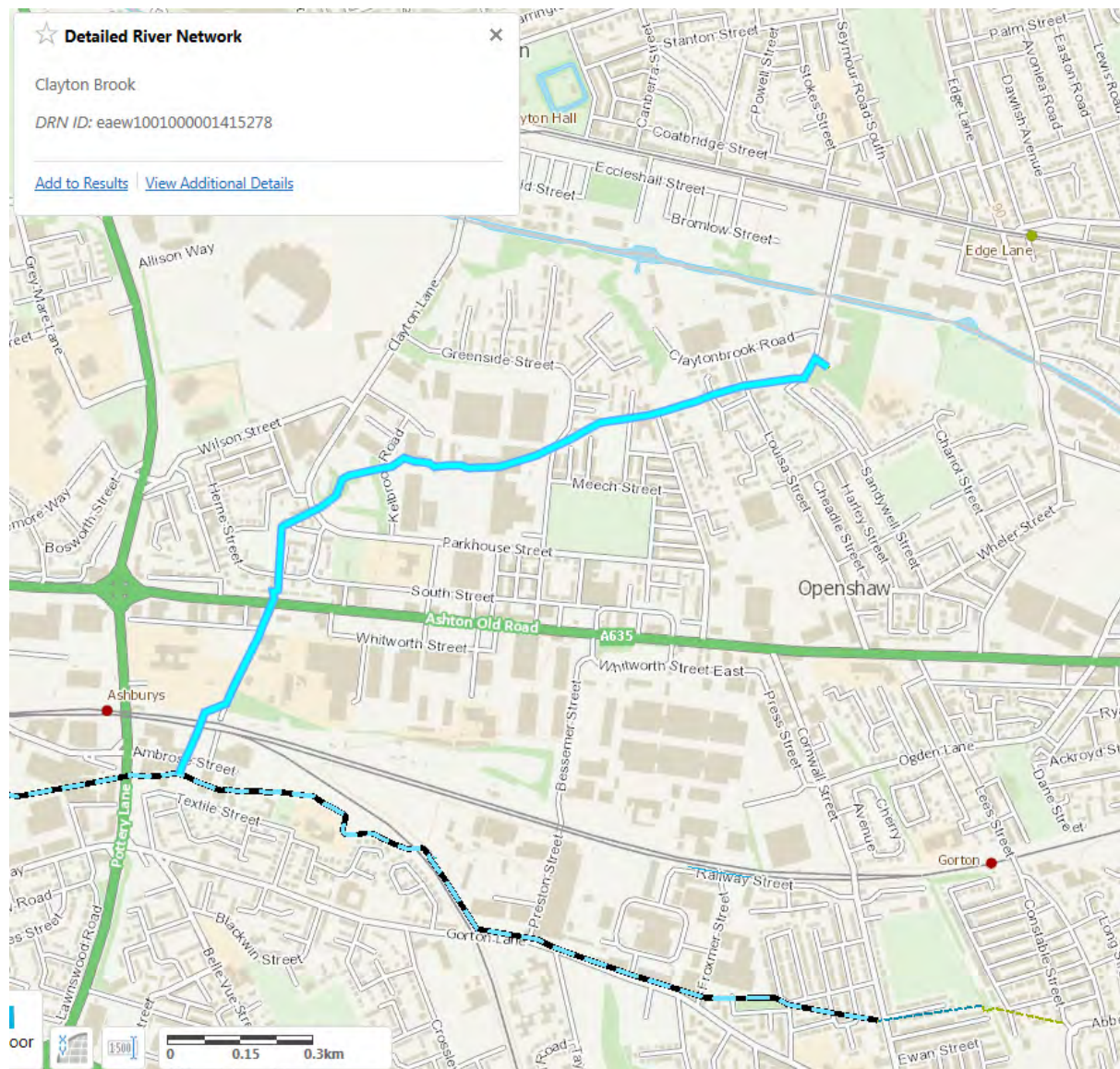
<http://www.rsk.co.uk>

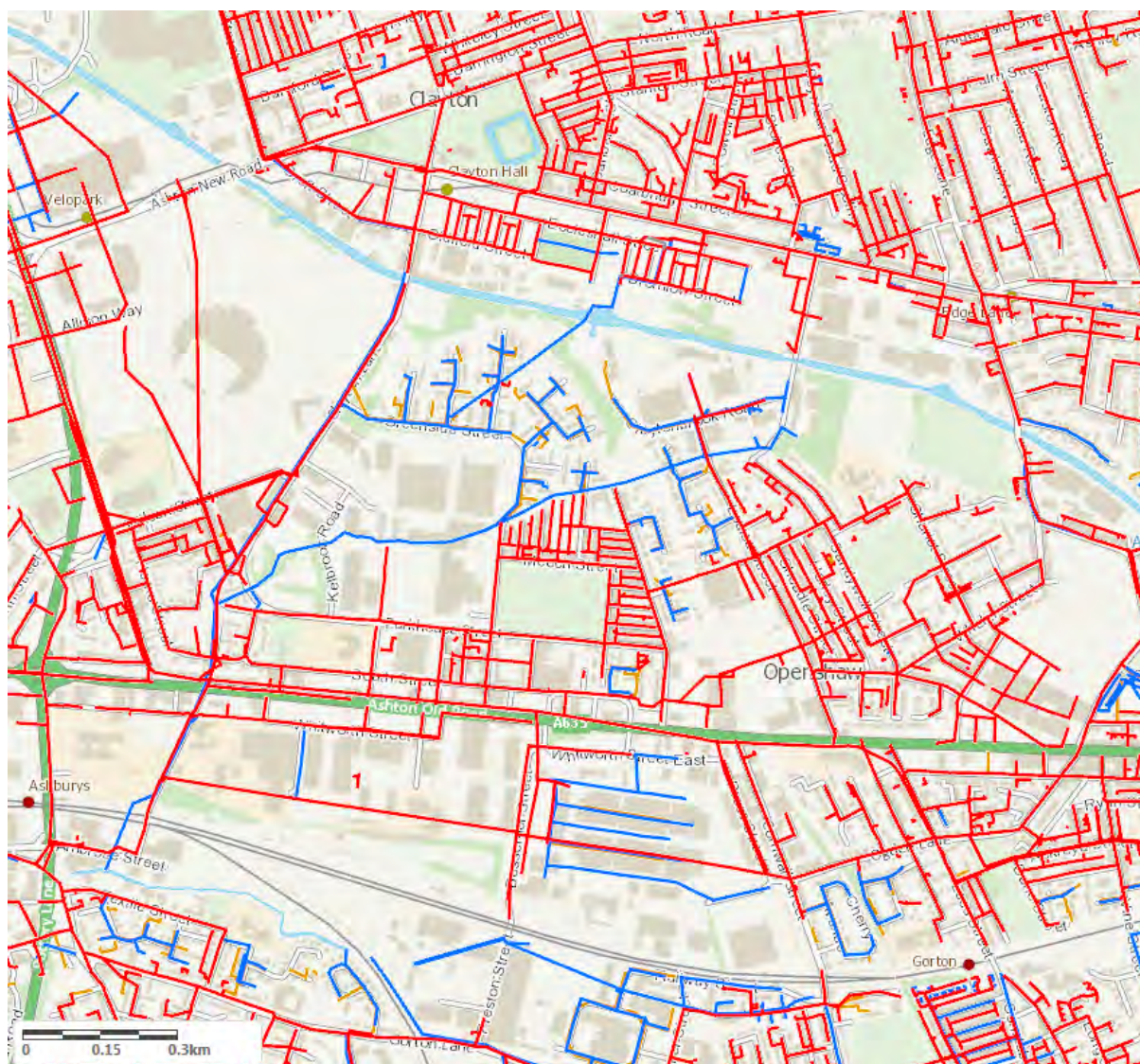
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Registered number: 4723837

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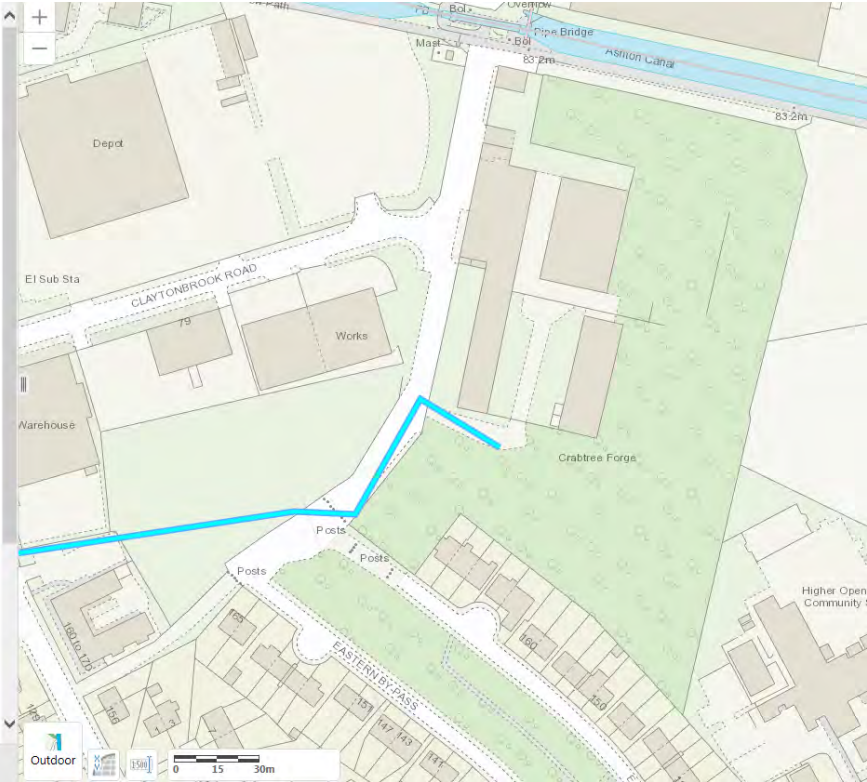


Description

Clayton Brook
DRN ID: eaew1001000001415278

Details

River name
Clayton Brook
Alternative river name
River name (Welsh)
FCRM watercourse reference
River type
Underground River (Potential Sewer)
Flow path
Primary Flow Path
Watercourse level
Below Surface
FCRM main river
Other Rivers
Main river status
Other Watercourse
WFD waterbody ID
DRN unique ID
eaew1001000001415278
From Node
eaew1002000001356764
To Node
eaew1002000001356778
Fluvial or Tidal
Fluvial





APPENDIX G

LLFA SITE SCREENING

Ryan Whitfield

From: Flood Risk Management <floodriskmanagement@manchester.gov.uk>
Sent: 10 August 2021 15:07
To: Ryan Whitfield
Subject: RE: ONLINE CONTACT FORM (PLANNING): Other (please say what below)
Attachments: Manchester City Council - SuDS Requirement for Developers 2019.pdf; 1_PrePayment_Letter - Crabtree Lane.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Mr. Whitfield,

Thank you for your enquiry received 06 August 2021 which we respond to below:

Records of historical flooding from all sources, Available information on culverted watercourses in the area of the site
- Please be advised the LLFA now offer a data screening service. I have attached a letter detailing the service offered. Please follow the procurement route should you wish to engage us.

Any data on existing surface water discharges to the surrounding watercourses – We have no records of Land Drainage Consents being granted which name the nearest ordinary watercourse. This information cannot be used to conclude that no discharge connections have been made to the watercourse. Enquiries regarding other types of watercourse should be made to the relevant authority.

Confirmation of the latest policy guidance on permitted discharge rates for brownfield developments - For sites demonstrated to be discharging via brownfield mechanisms, we require details of surface water attenuation that offers a reduction in surface water runoff rate in line with the Manchester Trafford and Salford Strategic Flood Risk Assessment, i.e. at least a 50% reduction in runoff rate compared to the existing rates. Should discharge to an ordinary watercourse be considered, a reduction to greenfield rates would be required. This may apply to other types of waterbody. Discharge into other assets regulated by 3rd parties would require evidence of agreement on discharge rate and/or connection. I have attached our SuDS guidance for major developments.

The site address is Crabtree Lane, Manchester, M11 1BR. Site centered at National Grid Reference: 388686 E, 398056N – Our response has been made on the basis of these co-ordinates, in absence of a site location plan defining the site boundary.

We welcome enquiries. Should you wish to discuss a matter further please do not hesitate to contact us.

Kind Regards,
Laura

From: planning@manchester.gov.uk <planning@manchester.gov.uk>
Sent: 06 August 2021 10:51
To: Planning <Planning@manchester.gov.uk>
Subject: ONLINE CONTACT FORM (PLANNING): Other (please say what below)

Please reply to: rwhitfield@rsk.co.uk

Question**Response***First name:*

Ryan

Surname:

Whitfield

Email address:rwhitfield@rsk.co.uk*House or flat number or building name:*

14

Street:

Beecham Court

Area:

Wigan

Postcode:

wn3 6pr

What do you want to contact us about? :

Other (please say what below)

Put your question, or tell us what you were looking for or trying to do.:

This enquiry is with regards to the production of a Flood Risk Assessment.
I am seeking available information for the site which includes:
Records of historical flooding from all sources,
Available information on culverted watercourses in the area of the site,
Any data on existing surface water discharges to the surrounding watercourses,
Confirmation of the latest policy guidance on permitted discharge rates for brownfield developments.
The site address is Crabtree Lane, Manchester, M11 1BR. Site centered at National Grid Reference: 388686 E, 398056N

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed.

If you have received this email in error, please notify the system manager.

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Your personal data is very important to us. Please refer to our privacy notice at www.manchester.gov.uk/privacy for further information.

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[WARNING: This email originated outside of RSK. DO NOT CLICK links, attachments or respond unless you recognise the sender and are certain that the content is safe]



**MANCHESTER
CITY COUNCIL**

Lead Local Flood Authority

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

Email: floodriskmanagement@manchester.gov.uk

DATE 22/03/2022

Dear Sir or Madam,

RE: Our Ref: MCC022/03/2022

We acknowledge with thanks your payment received on 21/03/2022 for our LLFA data screen service.

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

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

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

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

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

Yours Faithfully,

A handwritten signature in black ink, appearing to read 'N. A. Bayliss-Rowe'.

Neil Bayliss-Rowe, Highways Development Control & Flood Risk Manager, Lead Local Flood Authority

TERMS AND CONDITIONS – LLFA DATA SCREEN

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

TERMS AND CONDITIONS:

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

DATA SCREEN SYMBOLOGY

Bridge

-  Good
-  Fair
-  Poor
-  Very Poor
-  Unknown

Trash Screen

-  Good
-  Fair
-  Poor
-  Very Poor
-  Unknown

Culvert Orifice

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

Culvert Conduit

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



Supplementary Information where available:

Critical Drainage Area – *The Site is within the Conurbation Core Critical Drainage Area (CDA).*

Flood Incidents - *Recorded flood incidents closest to the site (south of the site) relate to highway 'blocked gully or drain' in 2019.*

Culvert Conduits – *The LLFA asset register indicates the risk of a culverted ordinary watercourse, the Clayton Brook, crossing the Site. The culvert route is indicative only and has not been confirmed by MCC with modern survey. The indicative route from the LLFA asset register is shown on the enclosed map as a dashed purple line.*

The presence of a watercourse/culvert onsite is noted on historic mapping. The client should consult historic mapping providers where necessary.

The culvert asset also appears in UU records. The client should consult UU on their records where necessary.

Survey and Design Archive – *The indicative culvert is also shown in archived drawings from MCC's 1984 drainage survey, where it is annotated to be a 600 dia asset. An extract of this is enclosed which shows the asset as a 'dash-dot-dot' line.*

Any other information identified by LLFA officer during screening –

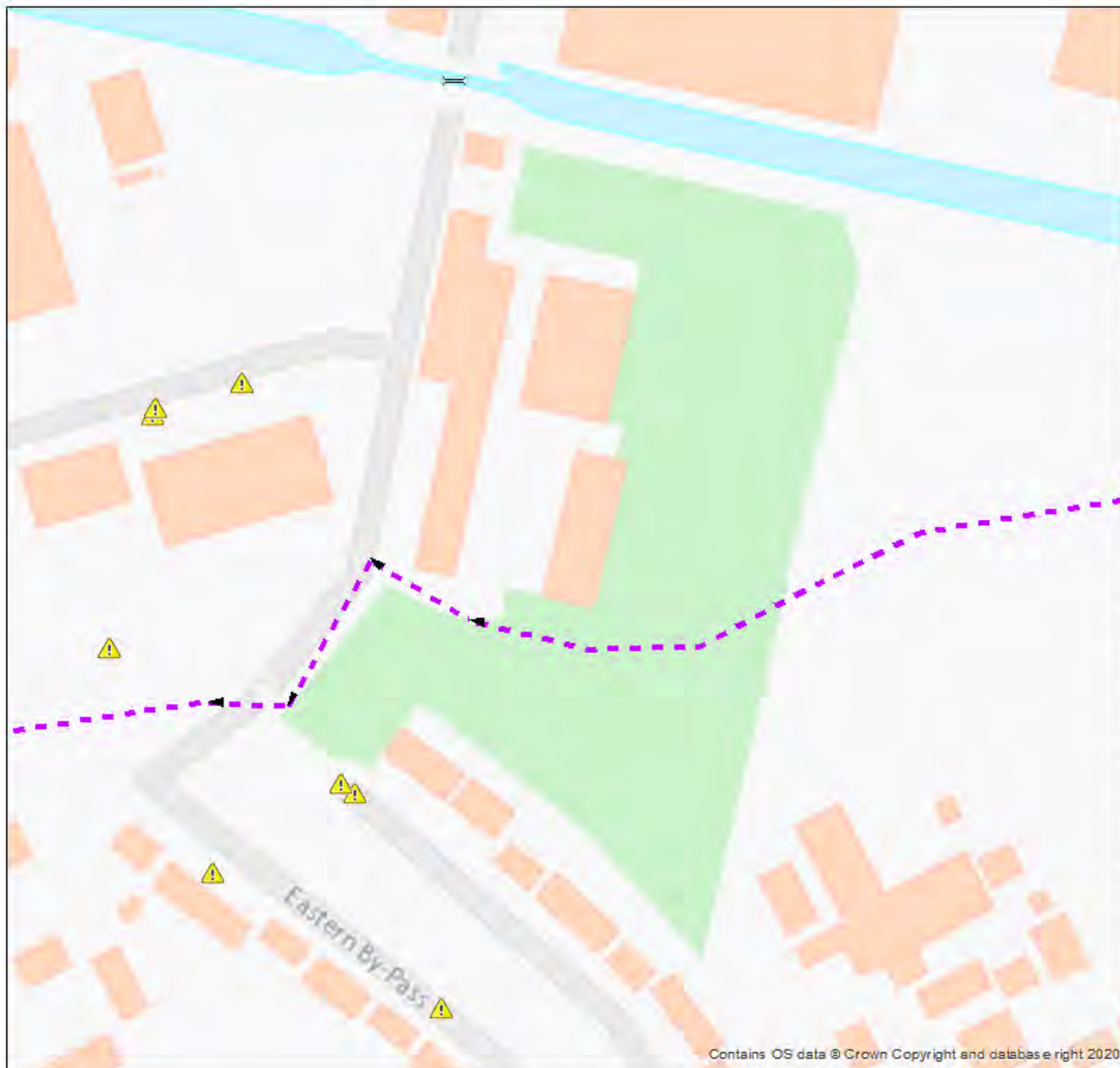
The site would benefit from an assessment of proposed flood risk from the nearby Ashton Canal. The LLFA recommend consultation with the Canal and River Trust.

The proposed drainage strategy would benefit from considering the watercourse assets available in proximity to the Site when demonstrating adherence to the Drainage Hierarchy.

The proposed development would benefit from site investigation to constrain the existence, extent and condition of the indicative culvert onsite. The LLFA would recommend that the masterplan shows due consideration of the culvert if determined to be present onsite.

Any proposed works to a culverted ordinary watercourse may require obtaining prior Land Drainage Consent from the LLFA.

The LLFA are available for consultation throughout the planning application process.



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**MANCHESTER
CITY COUNCIL**

LLFA DATA SCREEN

Address/Site Ref:

Crabtree Lane

Our Ref:

MCC022/03/2022

Author: Manchester City Council LLFA

Date: 23/03/2022

Scale: 1:1,477

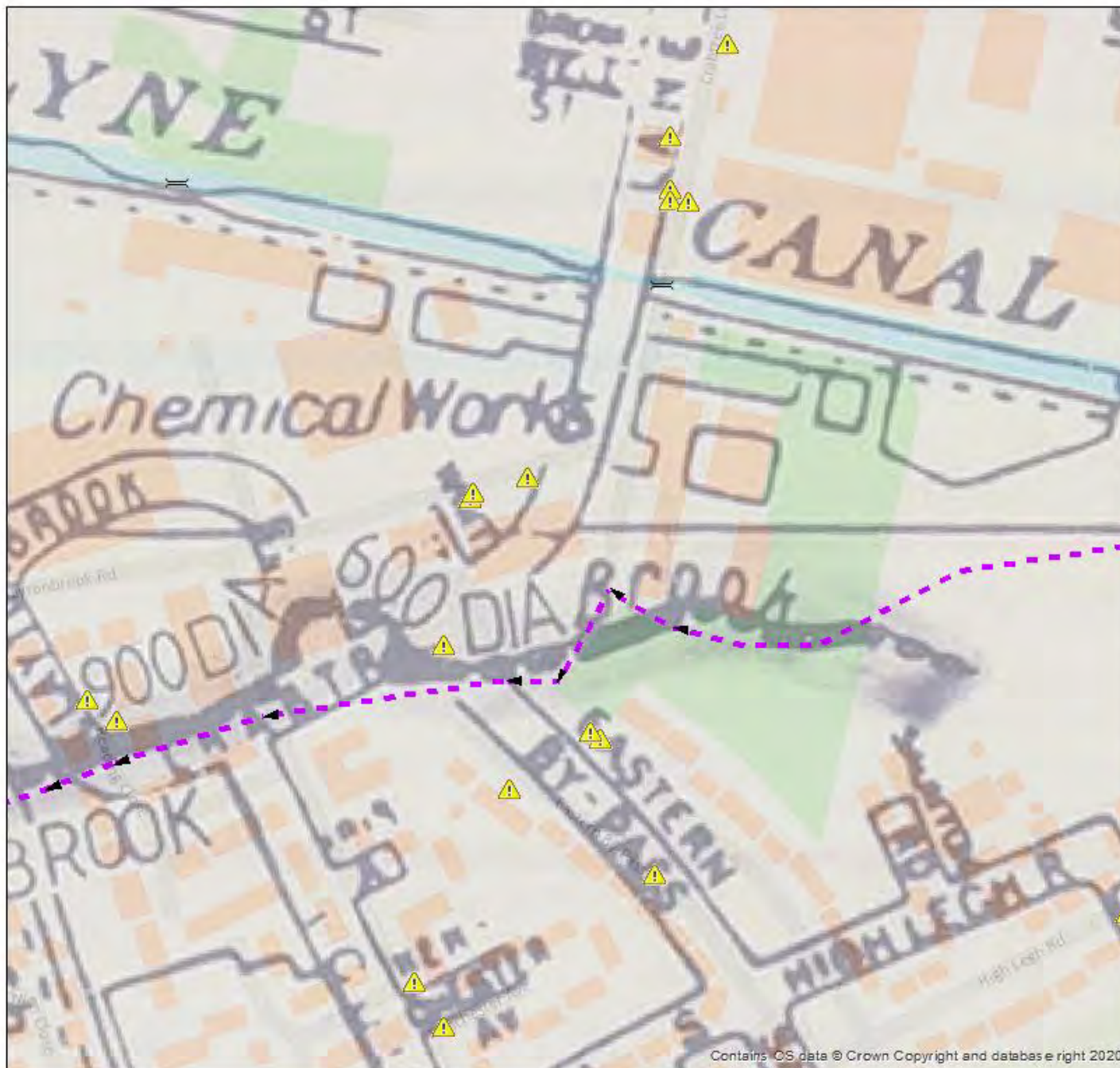
The position of features shown on this plan is approximate only and is given in accordance with the best information currently available. Manchester City Council will not accept liability for any loss or damage caused by the actual position being different from those shown.

0 10 20 40
Meters

N



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**MANCHESTER
CITY COUNCIL**

LLFA DATA SCREEN

Address/Site Ref:

Crabtree Lane

Our Ref:

MCC022/03/2022

Author: Manchester City Council LLFA

Date: 23/03/2022

Scale: 1:2,323

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

0 15 30 60
Meters

N



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APPENDIX H

PROPOSED SITE LAYOUT

Site A - Accommodation Schedule				Site Area = 2.27 Hectares	
HouseType	Sq.m	Sq.ft	Total No.	Total Sq.m	Total Sq.ft
1B2P Apartment	50	538	27	1350	14531
2B3P Apartment	61	657	18	1098	11819
2B3P Aspect House	77	829	12	924	9946
2B3P House	70	753	21	1470	15823
3B4P House	87	936	13	1131	12174
3B4P House	93	1001	18	1674	18019
4B5P House	107	1152	6	642	6910
Total No.			115	8289	89223

All Units Comply with Manchester's Emerging Space Standards



E	JUNE 22	SHW	EXISTING DRAIN ENDORSED, LAYOUT AMENDED TO SUIT		
D	OCT 21	SHW	LAYOUT UPDATED		
C	APR 21	SHW	SCHEME UPDATED FOLLOWING MEETING WITH MCC		
B	FEB 20	SHW	CLIENTS COMMENTS ENDORSED		
A	FEB 20	SHW	BOUNDARY UPDATED, SCHEME AMENDED TO SUIT		
REV	DATE	DRAWN	DESCRIPTION	ARCH CHECK	ENG CHECK

TITLE

PROPOSED SITE LAYOUT



M.C.I. DEVELOPMENTS
a Keepmoat Homes company

M.C.I. Developments Ltd.
15 Beecham Court,
Smithy Brook Road,
Wigan, WN3 6PR
tel: 08448871467
fax: 08448871468
web: www.mcidevelopments.com
email: admin@mcidevelopments.com

PROJECT					
CRABTREE LANE, OPENSHAW					
DRN BY	SHW	SCALE	JOB REF	DRAWING NUMBER	REV
DATE	OCT.21	1:500 @ A1	-	Crabtree Lane/Proposed Site Layout	E



APPENDIX I

CANAL & RIVER TRUST CORRESPONDENCE
