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Prepared by:	Artiom Cybulko
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1 Introduction

1.1 Purpose

The purpose of this Design Note is to summarise the existing flood risk and drainage information along with consequent design developments, in order to support the discharge of a pre-commencement planning condition 6a by the Manchester City Council, as per planning application ref. 125804/FO/2019.

1.2 Planning condition

Manchester City Council Planning condition 6a outlines the requirements for the flood risk and surface water drainage strategy for the development, and it reads as follows:

“Notwithstanding the detailed flood risk and drainage strategy stamped as received by the City Council, as Local Planning Authority, on the 8 January 2020, (a) above ground works excluding demolition shall not commence until a scheme for the drainage of surface water for the development has been submitted for approval in writing by the City Council as the Local Planning Authority. This shall include:

- *Consideration of alternative green SuDS solution (that is either utilising infiltration or attenuation) if practicable;*
- *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, as the site is located within Conurbation Core Critical Drainage Area;*
- *Runoff volume in the 1 in 100 year, 6 hours rainfall shall be constrained to a value as close as is reasonable practicable to the greenfield runoff volume for the same event, but never to exceed the runoff volume from the development site prior to redevelopment;*
- *Evidence that the drainage system has been designed (unless an area is designated to hold and/or convey water as part of the design) so that flooding does not occur during a 1 in 100 year rainfall event with allowance for climate change in any part of a building;*
- *Assessment of overland flow routes for extreme events that is diverted away from buildings (including basements). Overland flow routes need to be designed to convey the flood water in a safe manner in the event of a blockage or exceedance of the proposed drainage system capacity including inlet structures. A layout with overland flow routes needs to be presented with appreciation of these overland flow routes with regards to the properties on site and adjacent properties off site.*
- *Where surface water is connected to the canal agreement in principle from Canal and River Trust is required. An email of acceptance of proposed flows and/or new connection will suffice.*
- *Hydraulic calculation of the proposed drainage system;*
- *Construction details of flow control and SuDS elements.”*

1.3 Site

The proposed development is situated at 325 Deansgate in Manchester City Centre on a site bounded by Deansgate to the west, Trafford Street to the north, Century Street to the east and the Grade II listed Deansgate Castlefield Viaduct to the south. The site extends into two of the viaduct arches.

The proposed development is a ground plus 21 storey building, accommodating hotel units and commercial and leisure floorspace associated with the aparthotel. The development also comprises of two standalone units extending into viaduct arches located to the south of the site.

The structure will comprise of a composite steel frame which oversails an existing Grade II listed Castlefield Viaduct which forms the southern boundary of the development site.

2 Previous work

Previous work has been undertaken by other consultants in order to support the original planning application ref. 125804/FO/2019, which is still considered valid for supporting the pre-commencement condition 6a.

2.1.1 Flood Risk Assessment and Drainage Strategy

Flood Risk Assessment and Drainage Strategy report by Civic Engineers dated 05 September 2018 gives a detailed flood risk assessment and outlines a surface water drainage strategy, including detailed attenuation tank calculations as a SuDS solution for satisfying the planning requirement for reducing the surface water runoff rates by 50% as compared to the existing rates. The Report is attached to Appendix A of this Design Note.

Eckersley O'Callaghan has reviewed the original Flood Risk Assessment and Drainage Strategy report and considers the risk assessment and SuDS calculations to still be applicable to the current developed design of the site. The proposed SuDS design parameters are deemed to satisfy the requirements set out in the pre-commencement planning condition 6a.

It is however understood that the original proposal to discharge into the Rochdale Canal has not been approved by the Canal and River Trust, therefore an alternative surface water discharge location has been considered after the report issue. The changed discharge location does not affect the SuDS calculations presented in the report and they are therefore considered valid.

2.1.2 Note on Drainage Strategy

The Note on Drainage Strategy by Manshire Associates dated 28 April 2020 was issued as an addendum to the original Civic Engineers' report and considered an alternative to discharge the surface water flows into the existing 600x1050 combined sewer located under Trafford Street to the North of the development, as shown in the snapshot below. The note contains correspondence with United Utilities confirming that additional flow can be accommodated by the wider network. This alternative was adopted by the current drainage strategy and is considered to be valid to the current developed scheme. The Drainage strategy note is attached to Appendix B of this Design Note.



3 Design Development

3.1 Attenuation tank

3.1.1 Catchment area

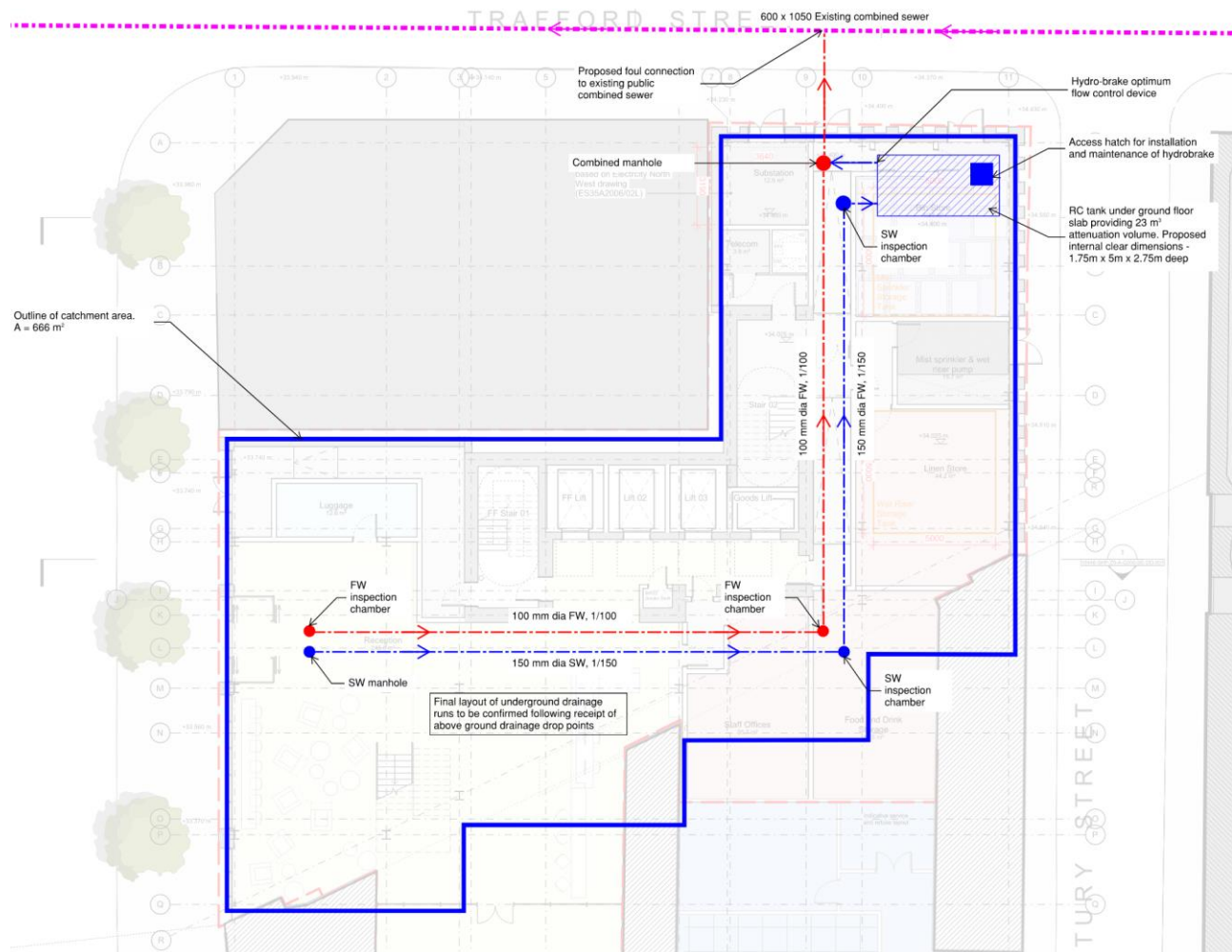
The whole catchment area of the site is the roof area of the building. The roof area of the building has not changed since the original planning application 125804/FO/2019 has been submitted, therefore the total catchment area of the site is deemed to be unchanged.

3.1.2 Attenuation volume

As the catchment area has not changed, the attenuation tank volume proposed originally is appropriate and can be adopted in the current scheme.

3.1.3 Location

The originally proposed location of the attenuation tank within the railway viaduct arches was considered to be unpractical due to construction issues. It is therefore proposed to relocate the attenuation tank to the North East corner of the building footprint, close to the combined manhole from which the combined foul and surface water will connect into a combined sewer via a short pipe run. The snapshot below shows the proposed drainage arrangement. See the sketch attached to Appendix C.



3.2 Underground drainage scheme

The proposed building foundations will consist of a thick raft supported by a grid of piles. It is therefore expected that the underground drainage will consist of a network of foul and surface water pipes cast within the thickness of the RC raft. The final layout of the underground drainage will be further developed following receipt of above ground drainage drop points.

4 Summary

The following notes summarise this design note prepared by Eckersley O'Callaghan:

- Floor Risk Assessment and SuDS calculations carried out by Civic Engineers in September 2018 are considered to be valid and addressing the requirements in MCC pre-commencement planning condition 6a, and therefore can be adopted for the developed scheme. See Appendix A.
- Surface water was originally proposed to discharge into Rochdale Canal which has not been approved by the Canal and River Trust. Alternative connection into Trafford Street combined sewer was adopted as per the drainage design note produced by Manshire Associates. See Appendix B.
- The current scheme adopted the above design and relocated the attenuation tank to the North East corner of the site footprint due to impracticalities associated with the original location of the underground tanks. See Appendix C for the current proposed drainage strategy.

**Appendix A – Civic Engineers Flood Risk
Assessment and Drainage Strategy**

Job Title

325 Deansgate, Manchester

Prepared for

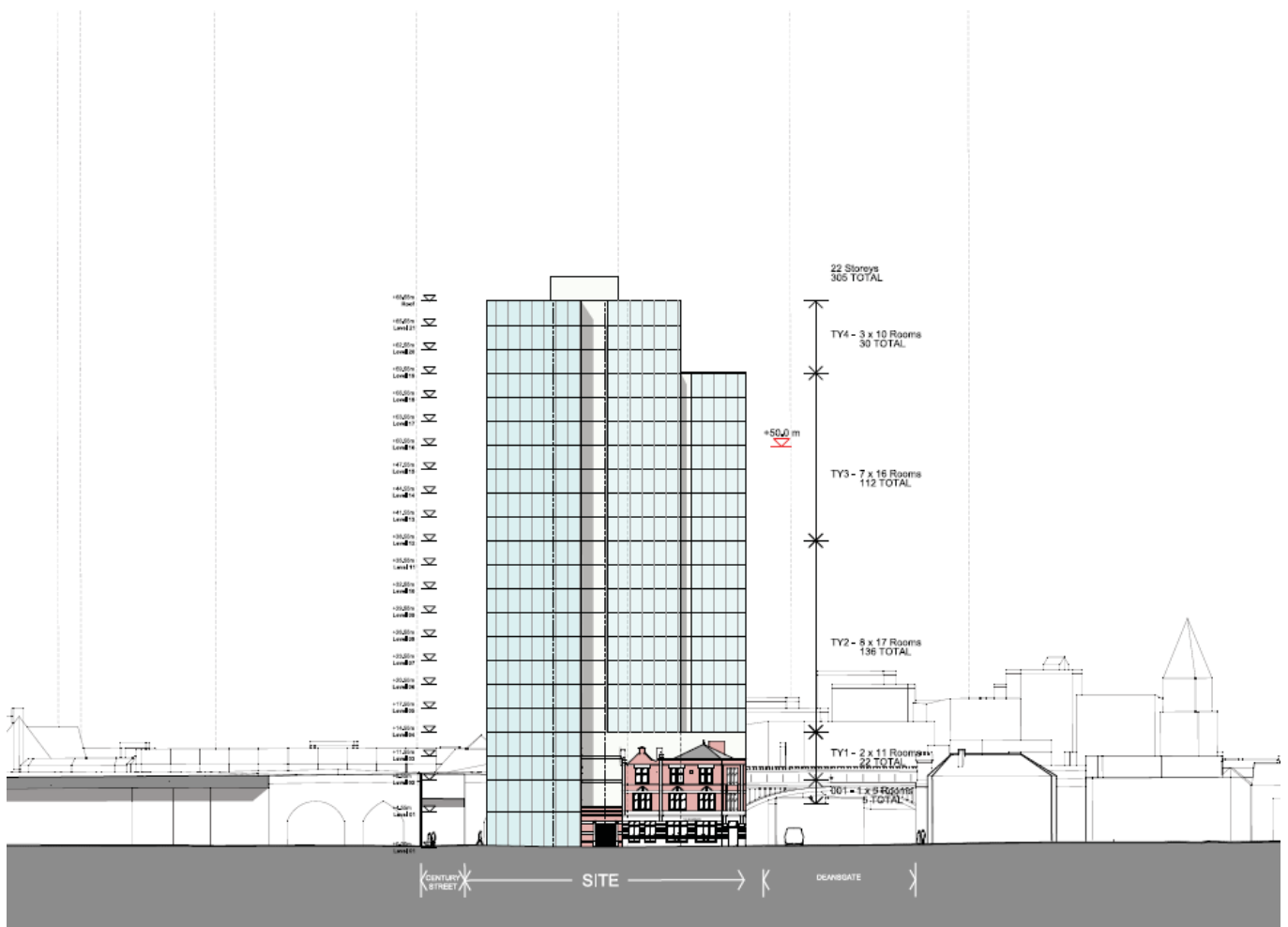
Ask Real Estate

Report Type

Flood Risk Assessment and Drainage Strategy

Date

5 September 2018



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Appendix D Surface Water Calculations
Appendix E Drainage Strategy Plan

Flood Risk Assessment and Drainage Strategy

Prepared by Eloise Moir-Mattox

Reviewed by Paul Morris

Civic Job No. 1032-01

Issued 05th September 2018

Revised P01

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1. Introduction

1.1 Project Background

Civic Engineers was appointed by Ask Real Estate to provide a Flood Risk Assessment and Drainage Strategy for the proposed development of land to the east of Deansgate, Manchester. The postcode for the site is M3 4LQ and the site is centred around an approximate National Grid Reference of 383424, 397622.

The report provides information on the nature of flood risk at the site and follows Government guidance with regards to development and flood risk.

The report is based on currently available information and preliminary discussions.

Proposals contained or forming part of this report represents the design intent and may be subject to alteration or adjustment in completing the detailed design for this project. Where such adjustments are undertaken as part of the detailed design and are deemed a material deviation from the intent contained within this document, prior approval shall be obtained from the relevant authority in advance of commencing such works.

Where the proposed works to which this report refers are undertaken more than twelve months following the issue of this report, Civic Engineers reserves the right to re-validate the findings and conclusions by undertaking appropriate further investigations at no cost to Civic Engineers.

1.2 Scope and Objectives

The assessment is to be undertaken in accordance with the standing advice and requirements of the Environment Agency (EA) for Flood Risk Assessments as outlined in the Communities and Local Governments Planning Policy Guidance to the National Planning Policy Framework (NPPF).

This is a detailed planning application, covering the development of a 250+ bedroom aparthotel and a commercial/leisure space. The area of land subject to this detailed application is approximately 0.16ha. Following scrutiny of the UK Governments Long Term Flood Risk information it has been identified that the existing site lies entirely within an area classified as Flood Zone 1, indicating that the probability of flooding from rivers or sea is low (less than 0.1% annual probability of river or sea flooding). While the site is less than 1 hectare, a Flood Risk Assessment has been deemed necessary as the site falls within the Critical Drainage Area and specified by the Manchester Council, Salford City and Trafford Councils Level 2 Hybrid SFRA.

In April 2015, the Government made changes to the National Planning Policy Framework which made Sustainable Urban Drainage Systems (SuDS) a material consideration in the determination of planning applications for 'major' developments. A Detail Drainage Strategy will therefore be required as part of the Full Planning Application for the development as the site is considered to be 'major' development by the Town and Country Planning Order 2015.

The assessment will:

- Investigate all potential risks of flooding to the site,
- Consider the impact the development may have elsewhere with regards to flooding,
- Consider proposals to mitigate any potential risk of flooding determined to be present; and

- Consider detailed drainage proposals to mitigate flood risk from the site

This report reviews the following information:

- Environment Agency flood maps for rivers and sea flooding
- UK Government Long Term Flood Risk Information for surface water flooding and reservoir flooding
- Manchester City, Salford City and Trafford Councils Level 2 Hybrid Strategic Flood Risk Assessment.
- Manchester City Council Local Flood Risk Management Strategy, March 2014
- United Utilities Public Sewer Records, August 2018
- Preliminary Environmental Risk Assessment – Groundtech Consulting, August 2018
- British Geological Survey (BGS) online survey/borehole data; and
- Topographical Survey – Malcolm Hollis, April 2018

1.3 Development Proposals

Full Planning Permission is sought for the erection of a 22 storey, 250+ bedroom aparthotel with entrance and reception fronting onto Deansgate, back of house on Trafford Street and Century Street and proposed commercial/leisure space at ground floor projecting into the existing masonry arches of the tram viaduct structure.

2. Existing Site Details

2.1 Current and Historic Use

The site is located within Manchester City Centre and is within the Unitary Authority Area of Manchester City Council (MCC). The site is currently developed and houses the Deansgate Tavern, commercial premise Boss Furniture with a showroom and warehouse, a private carpark and a brick viaduct which supports the Metrolink Tramway and railway infrastructure. The site will therefore be classified as brownfield.

The site is bordered to the west by Deansgate (A56), to the north by Trafford Street, to the east by Century Street and to the south by the southern limit of the brick viaduct and Whitworth Street West.

The wider area consists of commercial lots, hotels and residential complexes, and carparks. The site location is shown in Figure 1 below



Figure 1: Site location Aerial Photograph (© Google September 2018)

There is currently vehicle access off Trafford and Century Street and pedestrian access to the commercial premises from Deansgate. Pedestrians can access the Metrolink tram station via a stairway on Whitworth Street West to the south or via an elevator on Deansgate.

Historic maps obtained from emapsite, and contained within the Preliminary Environmental Risk Assessment, show the site from 1851 as developed with the buildings noted as Severn Warehouse.

In 1891 a section of the Severn Warehouse is demolished and railway sidings cross the southern half of the site. The site remains relatively unchanged until 1972 when the railway is dismantled and replaced with a viaduct and then in 1994 when the Metrolink was constructed. There have been no significant changes since this date.

2.2 Existing Watercourses and Waterbodies

The Rochdale Canal runs beneath the southern end of the site within the Gaythorn Tunnel and then passes through to the Deansgate Tunnel to the south west of the site. This water then discharges to the Castlefield Basin where it joins the Bridgewater Canal.

As well as the Rochdale Canal the following watercourses and waterbodies have been identified within the vicinity of the proposed site:

- The Bridgewater Canal is approximately 120m southwest at its nearest point; and
- The River Medlock is approximately 140m south of the site
- The River Irwell is approximately 620m north west of the site.

2.3 Existing Drainage

The public sewer records have been obtained from United Utilities and are enclosed within Appendix A. An extract is shown below in Figure 2.

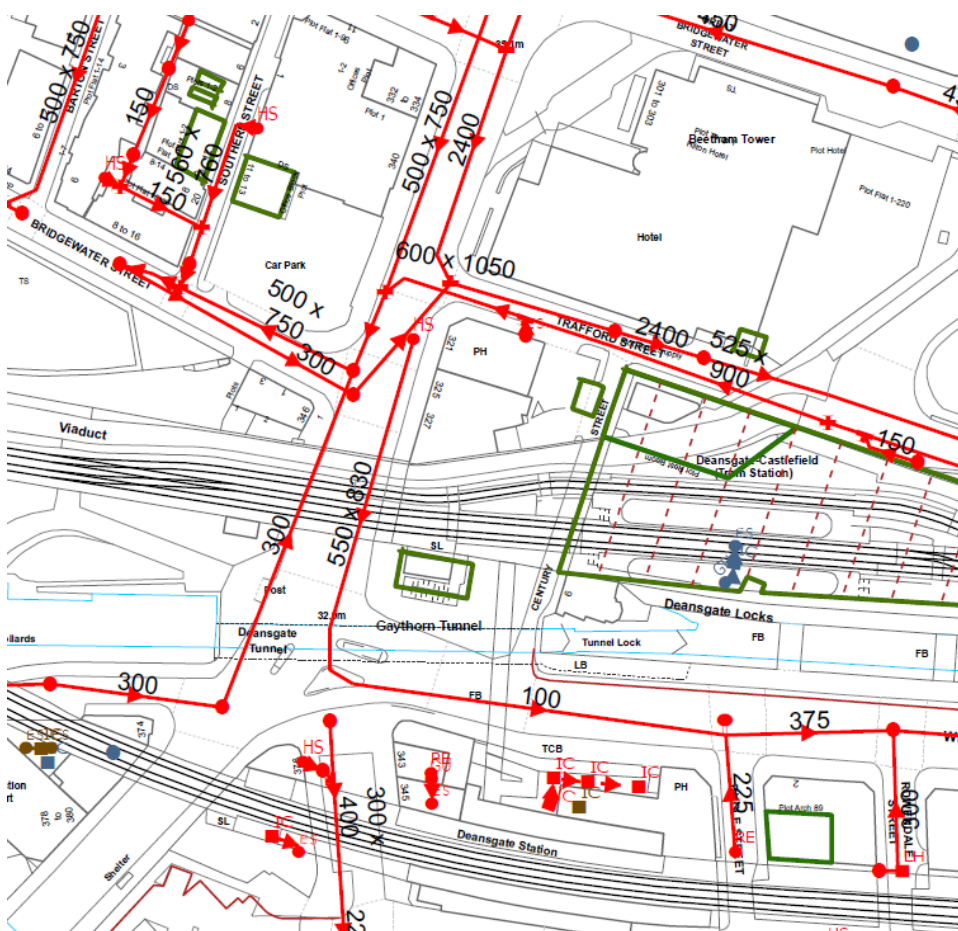


Figure 2: Extract from United Utilities Map of Public Sewers (Dated 12/07/2018)

The records indicate the following public sewer infrastructure within the vicinity of the site:

- A 900mm diameter combined gravity sewer flows in a north westerly direction along Trafford Street, north of the proposed site. This combines with a 500x750mm combined sewer running south and a 300mm combined sewer running north within Deansgate, to then flow west within Bridgewater Street.
- An existing connection from the site is shown connecting the Deansgate Tavern to the 900mm combined sewer within Trafford Street
- A 2400mm combined sewer runs in an easterly direction along Trafford Street, parallel the previously mentions 900mm sewer
- A 550x830mm combined sewer begins west of the Deansgate Tavern and flows in a southern direction along Deansgate to Whitworth Street West where it changes to a 100mm pipe and flows eastward.

There are no public foul or surface water sewer shown within the United Utilities sewer records.

A CCTV survey of the site and connection to the public network was undertaken by Lanes Group on the 19th September 2018 and the report is enclosed within *Appendix A*.

The survey identified the following sewer infrastructure on site and within the vicinity of the site:

- A private 100mm VC combined sewer runs in a south westerly direction from a manhole (MH02) in the carpark in the North East corner of the site. The survey tracked the sewer for approximately 28m beneath the existing building before terminating due to blockages.
- A 225mm VC surface water sewer runs in a north easterly direction from a manhole (MH01) in the carpark in the North East corner of the site. It is believed to connect to a sewer within Century St
- A sewer of unidentified size runs north from a manhole (MH03) in Century St and is believed to connect to the public UU combined sewer within Trafford Street via a 1050mm Concrete connection
- The public UU 900x525mm combined sewer within Trafford St was surveyed from MH4605 but was terminated upstream due to blockages. The sewer downstream of MH4605 was identified as a 1050x600mm brick U-shaped sewer and was terminated 7.65m downstream of the manhole due to blockages.
- Three inspection chambers were located in the existing carpark and noted as 'filled with concrete'

A copy of the CCTV Survey plan is shown in Figure 3 below.

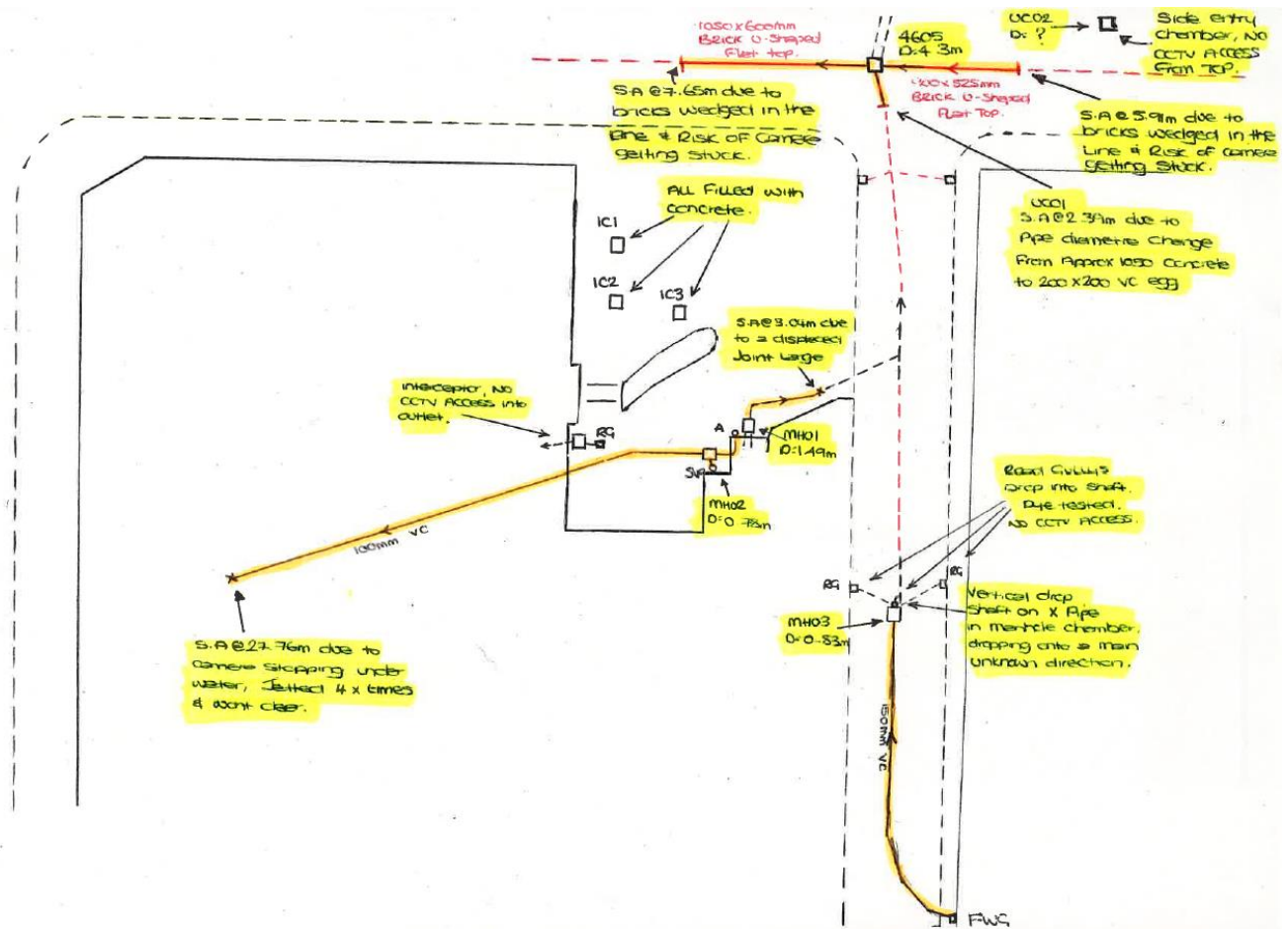


Figure 3: CCTV Survey plan – Lanes Group September 2018

2.4 Topography

A topographical survey has been undertaken by Malcolm Hughes Land Surveyors dated April 2018 and a copy of the survey drawing is included in Appendix B.

The site generally grades from a high point in the north east of 34.55m AOD to the south with an approximate level of 32.8m AOD.

The topographical survey indicates that the site is entirely impermeable with no vegetation and is covered with either tarmac, concrete or brick hardstanding. The Deansgate Tavern occupies the north west corner of the site and an associated small asphalt surfaced carpark occupies the north east. The southern half of the site houses a section of brick-built viaduct which supports the Metrolink Tramway and railway infrastructure above and forms two archways over the site. A commercial premise (Boss Furniture) with a showroom and warehouse sits within the arches and is bounded by then Deansgate Tavern to the north.

2.5 Geology

A Preliminary Environmental Risk Assessment has been prepared by Groundtech Consulting in August 2018 and details the following geological succession underlying the site:

- Superficial Deposits – Glaciofluvial Sheet Deposits; Devensian sands and gravel
- Bedrock – Chester Pebble Beds Formation; Sandstone

Made ground is indicated to underlie the site associated with the previous use as railway sidings.

The Environment Agency classifies the superficial deposits in this area as a Secondary A Aquifer which are permeable layers capable of supporting water supplies at a local rather than strategic scale. The bedrock is classified as a Principal Aquifer which is characterised by geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale.

The deposits beneath the site are classified as a major aquifer of high leaching potential. These soils are assumed to be highly permeable in the absence of site-specific information.

The site lies approximately 250m east of a Source Protection Zone and the nearest groundwater abstraction licence is 562m to the north at Gartside Street.

The British Geological Survey (BGS) provides online records of historic boreholes with the nearest borehole located 5m west of the site. This borehole record details bituminous surfacing encountered to a depth of 0.1m bgl, followed by medium dense sands and gravel to 3.9m bgl. Dense sand was present from 3.9m to 4.18m bgl with weathered sandstone below to a final depth of 7.0m bgl. Groundwater was not recorded as being present within the borehole.

Soilscape data obtained from the Cranfield Soil and AgriFood Institute (CSAI), supported by DEFRA, indicates a 'Naturally wet very acid sandy and loamy soil' profile and shallow groundwater.

The site lies within an area where the Law Society and Coal Authority recommends a mining search is undertaken due to past or current mining. A search has been carried out with the Coal Authority and has found that the property is not in an area affected by recorded past underground mining; is not within the zone of influence of any present underground coal workings; and is not likely to be affected at the surface by any planned underground working.

3. Relevant Policy and Guidance

3.1 National Planning Policy Framework

In March 2012 the Department of Communities and Local Government publishes the National Planning Policy Framework document (NPPF) and the Planning Practice Guidance was published in March 2014 which provides guidance on how flood risk should be assessed during the planning and development process.

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

The Flood Zones can be summarised as follows:

Zone 1: Low Probability. This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any one year. (<0.1%)

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

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

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

The 'Technical Guidance to the National Planning Policy Framework' defines the type and nature of different development classifications in the context of their flood risk vulnerability. The following extract outlines the NPPF Flood Risk Vulnerability Classifications.

Essential infrastructure • Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines.
Highly vulnerable • Police stations, ambulance stations and fire stations and command centres and telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use³. • Installations requiring hazardous substances consent⁴. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as "essential infrastructure")⁵.

More vulnerable - Hospitals. - Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. - Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. - Non-residential uses for health services, nurseries and educational establishments. - Landfill and sites used for waste management facilities for hazardous waste⁶. - Sites used for holiday or short-let caravans and camping, <i>subject to a specific warning and evacuation plan</i>.⁷
Less vulnerable - Police, ambulance and fire stations which are <i>not</i> required to be operational during flooding. - Buildings used for shops, financial, professional and other services,
restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non-residential institutions not included in "more vulnerable", and assembly and leisure. - Land and buildings used for agriculture and forestry. - Waste treatment (except landfill and hazardous waste facilities). - Minerals working and processing (except for sand and gravel working). - Water treatment works which do <i>not</i> need to remain operational during times of flood. - Sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place).
Water-compatible development - Flood control infrastructure. - Water transmission infrastructure and pumping stations. - Sewage transmission infrastructure and pumping stations. - Sand and gravel working. - Docks, marinas and wharves. - Navigation facilities. - Ministry of Defence defence installations. - Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. - Water-based recreation (excluding sleeping accommodation). - Lifeguard and coastguard stations. - Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. - Essential ancillary sleeping or residential accommodation for staff required by uses in this category, <i>subject to a specific warning and evacuation plan</i>.

Figure 4: Table 2 from Technical Guidance to the National Planning Policy Framework (2012)

The flood risk vulnerability and flood zone 'compatibility' has been summarised in Table 1 below.

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

Table 1: Flood Risk Vulnerability and flood zone compatibility from NPPF Technical Guide.

3.2 Site Specific NPPF Flood Risk Categorisation

To assess the NPPF flood risk classification for the site, the Government web based 'Flood Map for Planning' is reviewed, which is used to inform planning of a sites Flood Zone(s) and the probability of flooding from rivers or sea (not taking into account the presence of flood defences). The Government web based 'Long Term Flood Risk Assessment for Locations in England' should also be used to identify the flood risks from rivers and seas, surface water and reservoirs.

From the 'Flood Map for Planning', shown below in Figure 2, it can be seen that the proposed site and the surrounding area are entirely located within an area classified as Flood Zone 1 (low risk of flooding from rivers or sea).

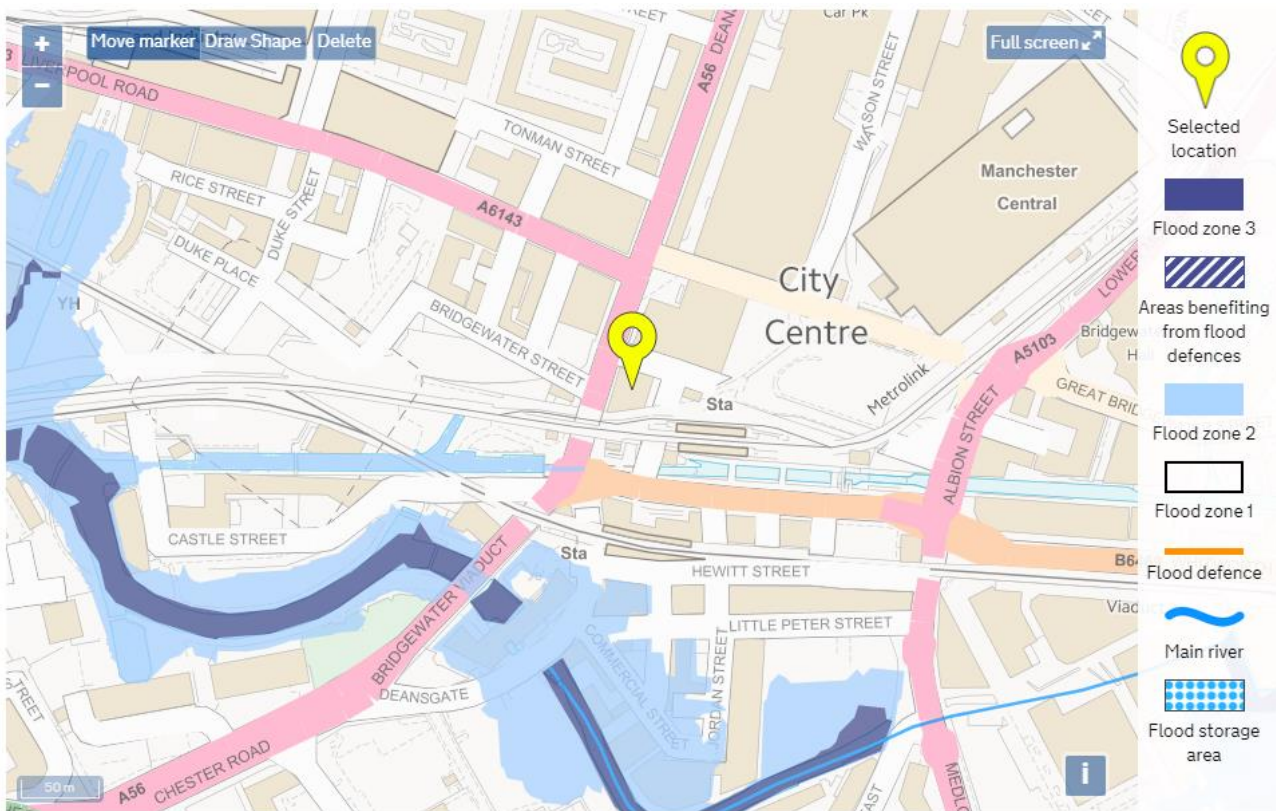


Figure 5: Flood Map for Planning (©Crown Copyright)

3.3 Site Specific Flood Zone Compatibility

The proposals for the development site are likely to fall within the following category:

- 'Buildings used for dwelling houses'

This type of development is classed as 'more vulnerable' in the Flood Risk Vulnerability Classification (Table 2)

This site is located within Flood Zone 1, for which all development is deemed to be appropriate and neither the sequential nor the exception test is required (refer to Table 1 for Flood Zone Compatibility, taken from the NPPF technical guidance).

3.4 Strategic Flood Risk Assessment (SFRA) and Manchester Core Strategy 2012

The Manchester, Salford and Trafford SFRA states that:

"Development should aim for a minimum reduction in surface water runoff rates of 50% for Brownfield sites, with an aim of reducing runoff to Greenfield rates up to a 1 in 100 year storm event, considering climate change.

Development should be designed so that there is no flooding to the development in a 1 in 30 year event and so that there is no property flooding in a 1 in 100 year plus climate change event."

Policy EN 14 (Flood Risk) of the Manchester Core Strategy requires that:

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

3.5 Critical Drainage Area

The proposed development site is within the Level 2 SFRA 'Critical Drainage Area' (CDA).

The Town and Country Planning Order 2006 defines Critical Drainage Areas as "an area within Flood Zone 1 which has critical drainage problems and which has been notified to the local planning authority by the Environment Agency". Certain locations are particularly sensitive to an increase in the rate of surface water runoff and/or volume from new development. There are generally known local flooding problems associated with these areas.

The SFRA has developed Critical Drainage Areas where:

1. There is a high risk of localised flooding from ordinary watercourses, including culverts surcharging and overland surface water flows, including the potential for flooding from the

sewer network due to failure/blockage or exceedance events when the storm return period is greater than the sewer was designed for; or

2. Where there are areas of significant redevelopment planned that could have a significant impact on surface water runoff to local watercourses and the sewer network.

Based on the SFRA Critical Drainage Area Map 'SS_4.5', the development site is within the 'Conurbation Core'. The following reasons have been provided as to why this area is within the CDA:

- Localised flooding problems in central Manchester and Salford
- Includes Lower Broughton which was focused of Defra Making Space for Water IUD pilot
- Focus of major regeneration and redevelopment that could have a significant impact on surface water runoff to local watercourses and the sewer network
- Many lost watercourses that are interconnected with the sewers, canals and open channel watercourses that pose a significant risk
- SFRA analysis shows significant surface water flooding hotspots between the Irk and Medlock and in Crumpsall, Cheetham Hill, Clifton Green, Newtown, Charlestown and Broughton
- 5 postcode areas with over 10 properties affected in the DG5 register

Sites within the CDA can have complex surface water flooding problems and would benefit from a Surface Water Management Plan and Drainage Strategy.

4. Hydrological Assessment

The potential sources of flooding to the development have been assessed and are discussed below.

4.1 Fluvial Flooding (Rivers and Streams)

From the Government flooding from rivers and seas maps for planning:

- Where a site is located in a dark blue shaded zone, this indicates that the site is within Flood Zone 3b where there is a chance of flooding of greater than 1 in 30 (3.3%).
- Where a site is located in a blue shaded zone, this indicates that the site is within Flood Zone 3a where there is a chance of flooding of between 1 in 100 (1%) and 1 in 30 (3.3%).
- Where a site is located in a turquoise shaded zone; this indicates that the site is within Flood Zone 2 where there is a chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%).
- Where a site is located in a white (unshaded) area, it is generally deemed to be classified as Flood Zone 1 where there is a chance of flooding of less than 1 in 1000 (0.1%).

Flooding to the site from rivers and seas is indicated in Figure 3 and it can be seen that the entire site is within an area classified as Flood Zone 1, therefore the site is considered to be at low risk from fluvial flooding.

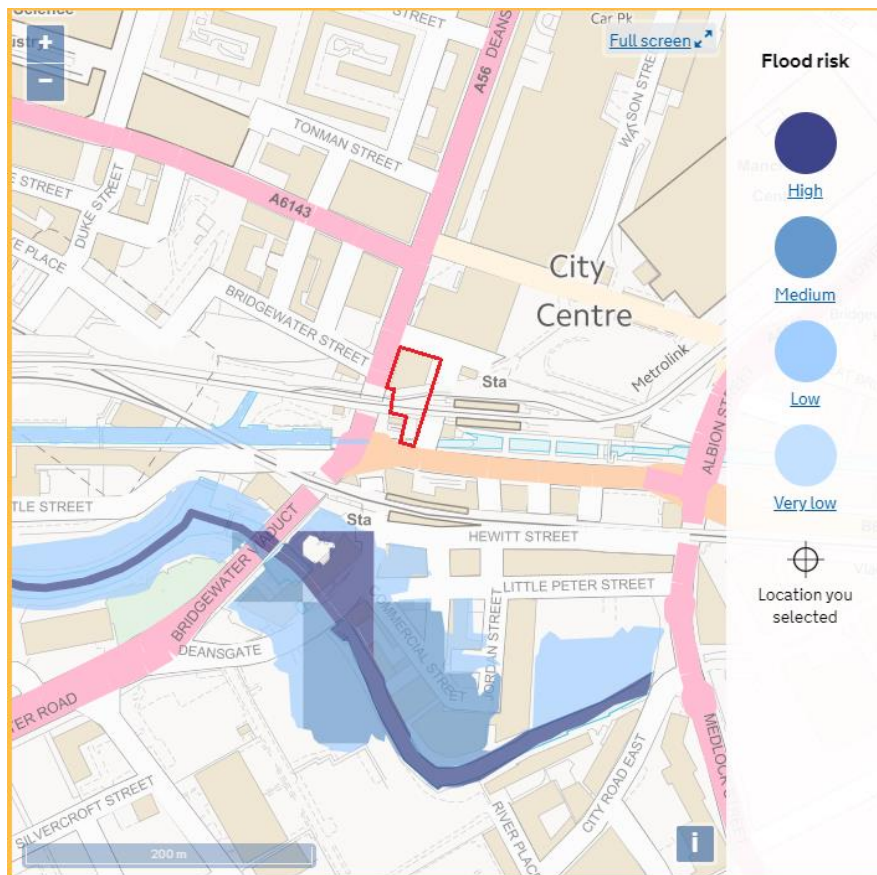


Figure 6: Long Term Flood Risk Assessment Map – Flood Risk from Rivers and Seas (© Crown Copyright)

Flood Zone 1 covers areas that have low probability of flooding (less than 1in1000 annual probability of flooding) from the River Medlock that runs over 140m away from the site in the NW direction. Flood Event level information has been obtained from the Environment Agency and is summarised below:

1 in 100 year	1 in 1000year	1 in 100 yr + 35%	1in100 yr + 70%
25.74mAOD	26.41mAOD	25.96mAOD	26.20mAOD

Table 2: Summary of Environment Agency flood Levels data

All of these flood levels sit well below the lowest site level of 32.8mAOD and confirm the sites location within flood Zone 1 as illustrated in Figure 3.

The Impacts of Climate Change on Fluvial Flood Risk

Peak river flow allowances for various river basins, available from Environment Agency, are suitable for both Flood Risk Assessments and Strategic Flood Risk Assessments. They consider potential increase in peak river flow due to climate change. Table 3 below, based on data provided by the Environment Agency, shows anticipated flow changes for the North West district.

River Basin District	Allowance Category	Total potential change anticipated for the:		
		'2020s' (2015-2039)	'2050s' (2040-2069)	'2080s' (2070-2115)
North West	Upper End	20%	35%	70%
	Higher Central	20%	30%	35%
	Central	15%	25%	30%

Table 3: Peak river flow allowances for the North West river basin district (use 1961 to 1990 baseline)

Based on the nature of the development, a lifespan in excess of 60 years is anticipated. Therefore, the potential climate change allowance for 2070-2115 ranges between 30% for the central allowance and 70% for the upper end allowance.

The Environment Agency presents a set of recommendations based on the level of vulnerability of a proposed structure and its Flood Zone. The higher the vulnerability, and the riskier the Flood Zone, the higher the assumed flow increase. However, no recommendations were made for Flood Zone 1, due to its low flood risk. The impact of increases of flow of 35% and 70% is included in the figures as shown in Table 2 above and does not result in an increased flood risk to the site.

4.2 Tidal Flooding (Coastal or Estuarine)

As the proposed site is approximately 40km from the nearest coastal body of water the risk from tidal flooding is considered low.

4.3 Reservoir Flooding

Reservoir flooding is extremely unlikely to happen and there has been no recorded loss of life in the UK from reservoir flooding since 1925. The Environment Agency is the enforcement authority and ensures that reservoirs are inspected regularly and essential safety work is carried out.

The Flood Risk from Reservoirs map shows the largest areas that might be flooded if a reservoir were to fail and release the water it holds. Since this is a prediction of a worst-case scenario, it is very low risk that a reservoir flood would be this large. The site, and surrounding area are not classified as being affected by reservoir flooding and is therefore considered at very low risk.

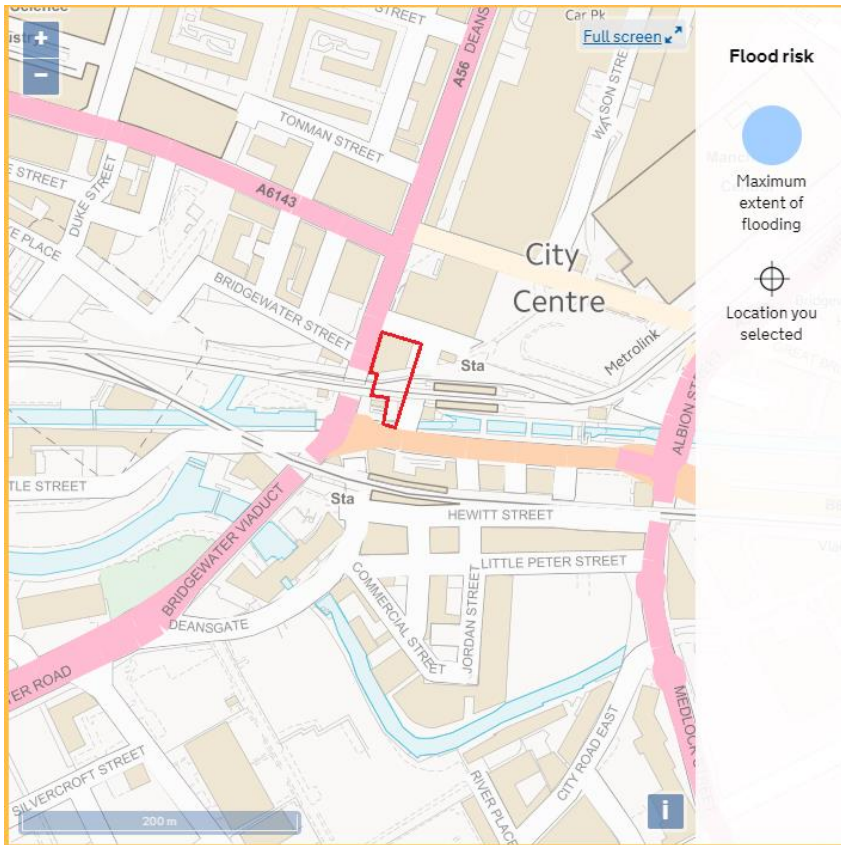


Figure 7: Long Term Flood Risk Assessment Map – Flood Risk from Reservoirs (© Crown Copyright)

4.4 Canal Flooding

The nearest canal to the proposed development is the Rochdale Canal (a broad canal) which is conveyed across the south side of the site via the Gaythorne Tunnel.

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

The Manchester City Council Local Flood Risk Management Strategy document discusses the risk of flooding from canals and notes that the probability of overtopping or a breach occurring is considered to be low, primarily due to the monitoring and maintenance activities of the Navigation Authorities.

The Level 2 SFRA also advises that there is limited likelihood of canal overtopping in Manchester and should it occur it is unlikely to affect areas beyond the canal towpath.

A Pre-Development Enquiry was issued to the Canal & River Trust to comment on historic flooding and their response is enclosed within *Appendix C*. The Canal & River Trust advised that they are aware of 3 overtopping events:

- Two events at Lock 91 (approximately 40m from the site); overtopping at the lock, occurring in 2009 and 2010
- One event between locks 89 – 90 (approximately 300m from the above site); overtopping between the locks due to boater error. Event occurred in 2010

As the section of the canal that passes through the site is contained within the Gaythorne tunnel, the risk from overtopping within the site is considered low.

4.5 Groundwater Flooding

The Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA details the risk of groundwater flooding within the city based on the best available information at the time it was produced. The 'Groundwater Flooding' map does not show the proposed site within an 'area at risk of GW flooding' or within an 'area at risk of GW rebound'. It should also be noted that this information should not be viewed as fully comprehensive due to the nature of groundwater flooding and there are potentially additional areas of risk within the city.

The Manchester City Council Local Flood Risk Management Strategy document notes that flood risk from groundwater has not been historically significant.

Site specific groundwater levels have not been investigated however the 'Soilscape' for the site indicates the possibility of a shallow groundwater table. Historic borehole information taken in the vicinity of the site did not note the presence of groundwater and so it is recommended that borehole testing be undertaken on site, as part of a ground investigation prior to detailed design, in order to confirm levels.

There is a residual risk of groundwater levels rising as a result of any flooding associated with the River Medlock. Based on the flood level data as provided by the EA the flood water level in a 1in10yr + 70% climate change allowance would be 26.2mAOD which is still below the lowest level indicated within the topographical survey.

Currently the risk of groundwater flooding to the development site is considered to be low.

4.6 Public Sewers, Highway Drainage Flooding and Infrastructure Failure

There are various public sewers within the vicinity of the site.

A Pre-Development enquiry was issued to United Utilities and is included within *Appendix C*. United Utilities did not advise of any history of flooding for the area.

Providing United Utilities and Manchester City Council maintain their drainage assets in the vicinity of the site, the risk of flooding to the proposed development site from public sewer or highway drainage is considered to be low.

4.7 Surface Water Flooding to the Site

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

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

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

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

The extent of flooding to the site from surface water is indicated in Figure 5 and it can be seen that the majority of the site is located in an area classified as being at 'Very Low' risk of flooding from surface water. A localised area in the south east corner of the site displays a low risk of flooding which appears to be consistent along the length of the Rochdale Canal.

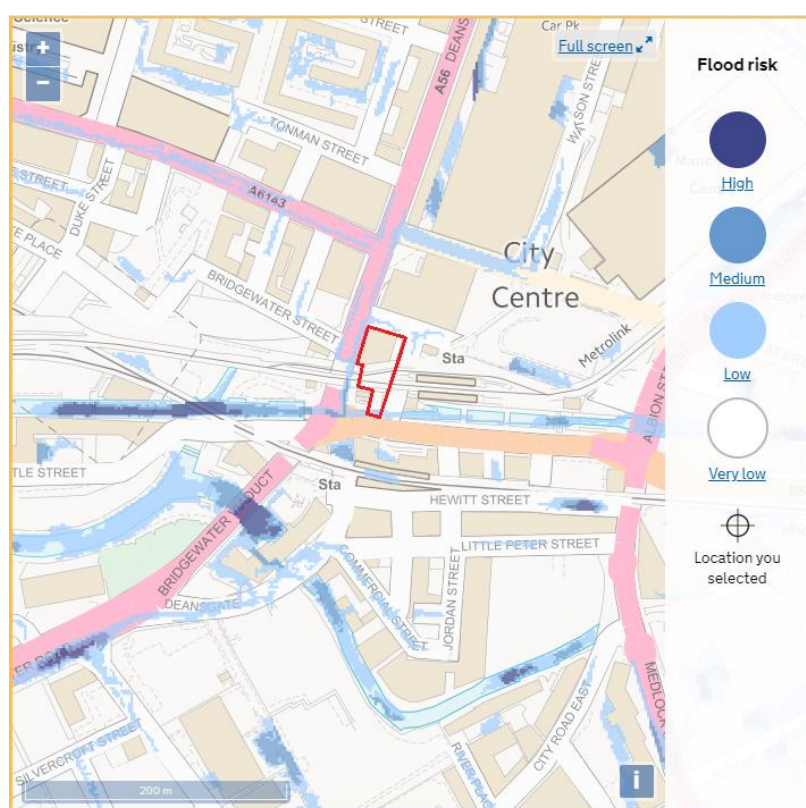


Figure 8: Long Term Flood Risk Assessment Map – Flood Risk from Surface Water (© Crown Copyright)

The risk of surface water flooding to the site is considered to be low

4.8 Surface Water Flooding from the Site

Developers are responsible for ensuring that new development does not increase the flood risk elsewhere. The proposed surface water drainage network shall be designed to not flood for the critical 1 in 30-year storm event and flood water generated up to the critical 1 in 100-year plus climate change storm event shall be constrained within areas on site so as not to cause damage to buildings, essential services or adjoining developments and services.

As the development does not alter the 100% impermeable nature of the site, the potential to increase flood risk to the surrounding area is considered to be low. A detailed assessment of the proposed surface flows is carried out within the drainage strategy within Section 5 of this report.

4.9 Historic Flooding

Historical flood events are noted within the SFRA which details a historic bank overtopping recorded on the Rochdale Canal at Holland Street (approximately 2.5km NW of the site). British Waterways advised that the overtopping in the area was caused by lowered freeboards from mining subsidence. The distance from the proposed site and the flooding cause indicate this historic event does not infer likely flooding at the proposed site.

Historic flooding does not necessarily indicate that flooding will be a future risk.

A Pre-Development Enquiry has been issued to the following statutory bodies to comment on historic flooding and their responses are enclosed within *Appendix C*:

- United Utilities – response did not indicate a history of flooding from sewers
- LLFA, Manchester City Council – advised that they 'do not have record on flooding incidents on the proposed site or in immediate vicinity of the site'
- Canals and River Trust – advised that they are aware of three overtopping events, two of which were in the vicinity of the site at Lock 91 (approximately 40m upstream of the site along the Rochdale Canal).

4.10 Summary of Flood Risk

From the evidence collated and subsequent negotiations, the flood risk proposed to the development can be summarised as follows:

- Fluvial (Rivers and Streams) – Low Risk
- Tidal – Low Risk (Not applicable)
- Reservoir – Low Risk
- Canals – Low Risk
- Groundwater – Low Risk
- Public Sewers – Low Risk
- Surface Water – Low Risk
- Historic – No events noted as specifically affecting the proposed development site.

5. Surface Water Management Strategy

5.1 Existing Site Drainage

The site is currently occupied by a commercial showroom, warehouses and a surfaced car park and based on aerial imagery and the topographical survey it has been concluded that the site is 100% impermeable.

A CCTV survey was conducted onsite and identified a private 100mm VC combined sewer running beneath the existing building. The survey also identified downpipes, manholes and three inspection chambers which were noted as 'filled with concrete'. This private infrastructure will be removed as part of the development demolition process unless it is deemed usable at detailed design stage.

The United Utilities public sewer records have been obtained and they indicate that there is an existing connection from the Deansgate Tavern to the 900mm combined sewer within Trafford Street but no public sewers within the site. The sewer records are enclosed within *Appendix A*.

At this stage it is currently anticipated that no formal sewer diversions are required.

5.2 Existing Site/Pre-development Runoff

Pre-development run off rates have been calculated using Average Intensity Rainfall data specific to the area and the Surface Water Calculations are included in *Appendix D*.

Based on a site area of 0.067hectares, the existing runoff rate is 4.88 L/s

5.3 Post-development Runoff and Attenuation

As the proposed site is currently fully developed and classed as a 'Brownfield', the surface water flow from the site will be restricted so that it does not exceed the pre-development run off rates, with the aim of achieving a 50% reduction in accordance with the recommendations as set out in the Manchester City, Salford City and Trafford Councils SFRA.

The discharge rates for the development site with an applied 50% betterment are as follows:

- 1 in 1yr event = 2.4 L/s
- 1 in 30yr event = 5.96 L/s
- 1 in 100yr event = 7.69 L/s

The above figures are considered to be 50% of the existing flow based on a development area of 0.067ha which is 100% impermeable. Discharge for the development will be limited to the 1 in 1yr event rate of 2.4 L/s

In February 2016, the Environment Agency released updated climate change allowances for peak rainfall intensities which should be applied to new developments. Table 4 demonstrates the climate change allowances with central and upper end allowances being considered.

Based on the nature of the development, a lifespan in excess of 60 years is anticipated. The potential climate change allowance for 2070-2115 ranges between 20% for the central allowance and 40% for the upper end allowance. As such, the design will consider an allowance of 40% climate change on peak rainfall intensity for all calculations.

Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper end	10%	20%	40%
Central	5%	10%	20%

Table 4: (Extract Environment Agency Guidance) Peak Rainfall Intensity Allowance in small and urban catchments

In restricting the flows from the development site there will be a requirement to provide attenuation to accommodate flows up to the 1 in 100-year event with a climate change allowance of 40%. The purpose of the attenuation being to maintain operation on the system during the 1 in 1yr, 1 in 30yr and the 1 in 100yr (plus climate change) storm events.

The required volume of attenuation has been calculated using Micro Drainage based on the proposed development having 100% impermeable area Surface Water Calculations are included in Appendix D and is as follows:

- Development area (0.067ha impermeable area) – Attenuation volume; 23m³

Any phasing proposed for the development may require temporary or staged flow restriction and attenuation.

Potential Sustainable Drainage Systems (SuDS) Features to be Considered

Section 1.1 of the SuDS Manual (Ciria C753) states the following:

"Sustainable drainage systems (SuDS) can deliver multiple benefits.

Surface water is a valuable resource and this should be reflected in the way it is managed and used in the built environment. It can add to and enhance biodiversity, beauty, tranquillity and the natural aesthetic of buildings, places and landscapes and it can help make them more resilient to the changing climate.

The philosophy of sustainable drainage systems is about maximising the benefits and minimising the negative impacts of surface water run-off from developed areas.

The SuDS approach involves slowing down and reducing the quantity of surface water runoff from a developed area to manage downstream flood risk, and reducing the risk of that runoff causing pollution. This is achieved by harvesting, infiltrating, slowing, storing, conveying and treating runoff on site and, where possible, on the surface rather than underground. Water then becomes a much more visible and tangible part of the built environment, which can be enjoyed by everyone."

The SuDS Manual describes the four pillars of SuDS design as Water Quality, Water Quantity, Amenity and Biodiversity as illustrated in Figure below.

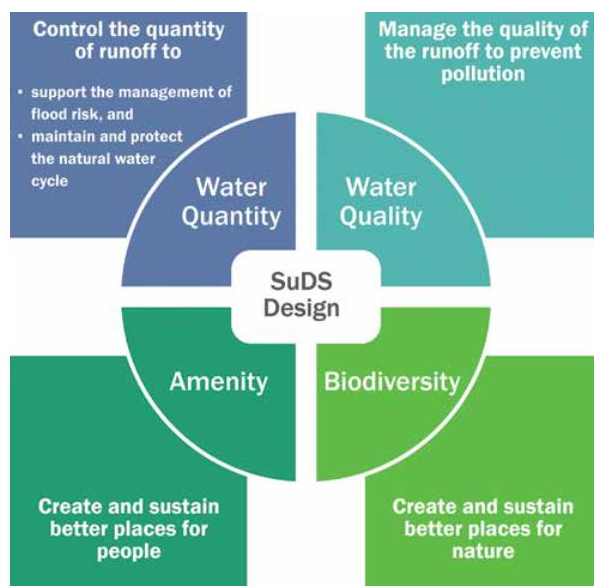


Figure 10: Sustainable Development Objectives (Representation of Figure 2.1 of The SuDS Manual)

As the proposed building will occupy 100% of the site, it is only feasible to attenuate the surface water flows using underground geocellular units.

The surface water run-off from the site will be entirely from roofs and as such the risk of contamination and suspended silts/debris being present within surface water will be low.

Maintenance of SuDS will be the responsibility of the developer/operator of the development.

5.4 Drainage Hierarchy Points of Discharge

The NPPF Planning Practice Guidance Paragraph 080 states that:

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

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

Infiltration Potential Sustainable Drainage Systems (SuDS) Features to be Considered

As the proposed development will occupy 100% of the site; and due to the previous site use and potential risk for contamination to a strategic level principle aquifer, it has been deemed not feasible to dispose of surface water from the built development through infiltration.

Information obtained from the Cranfield Soilscape also indicates a risk of shallow groundwater for the area.

Water Body

The nearest water body to the development is the Rochdale Canal, which runs beneath the south of the site via the Gaythorne Tunnel.

A connection enquiry is underway with the Canal & River Trust to ascertain whether they will accept surface water connections from developments.

Surface Water Sewer

There are no surface water sewers within the vicinity of the site.

Combined Sewer

United Utilities public sewer records indicate the following sewer mains within the vicinity of the site

- A 900mm combined gravity sewer flows in a north westerly direction along Trafford Street
- An existing connection from the site is shown connecting the Deansgate Tavern to the 900mm combined sewer within Trafford Street
- A 2400mm combined sewer runs in an easterly direction along Trafford Street, parallel the previously mentions 900mm sewer
- A 550x830mm combined sewer begins west of the Deansgate Tavern and flows in a southern direction along Deansgate to Whitworth Street West where it changes to a 100mm pipe and flows eastward.

The recommended point of connection would be to the 900mm or 2400mm sewer within Trafford Street due to the quieter traffic loads and larger pipe sizes.

As this option is the last on the NPPF Drainage Hierarchy, this line of enquiry will only be progressed should the Canal & River Trust not permit discharge to a water body, the Rochdale Canal.

Any connection to the public sewer network will be subject to a Section 106 Agreement with United Utilities.

The surface water discharge options are summarised below in Table 4.

Surface Water Disposal Method	Potential	Description
Infiltration	X	Made ground is present due to historic and current use; the site is underlain with sandstone; and there is a risk of a shallow water table.
Water Body	✓	The Rochdale Canal runs beneath the south end of the site. Discharging into the canal is subject to approval from the Canal & River Trust and an enquiry is underway.
Surface Water Sewer	X	There are not public surface water sewers within the vicinity of the site
Combined Water Sewer	✓	There are combined public sewers within the vicinity of the site. As this connection would be the least sustainable and there is an alternative higher in the NPPF Drainage Hierarchy, this option will be investigated as an alternate option. Connection to the public sewer network is subject to agreement from United Utilities and a response is awaited.

Table 4: Summary of Surface Water Disposal

5.5 Proposed Surface Water Drainage

Any new development site drainage should be design in accordance with current best practice to provide adequate capacity not to flood for the critical 1 in 30-year storm event and flood water generated for up to the critical 1 in 100-year plus climate change storm event shall be constrained within the areas on site so not to cause damage to buildings, essential services or adjoining developments and services.

As the site is Brownfield and is located within a Critical Drainage Area, surface water drainage from the main development site will be restricted such that it does not exceed the pre-development run off rates, with the aim of achieving a 50% reduction in accordance with the recommendations as set out in the Manchester, Salford & Trafford SFRA.

Based on the proposed developed, a traditional system of pipes and manholes will convey flows across the site to geocellular storage units beneath the existing viaducts. It will then discharge from the site, via a manhole with a flow restriction device, to the Rochdale Canal at a rate of 2.4 L/s.

The proposed drainage strategy is enclosed in Appendix E

6. Proposed Foul Water Drainage

A pre-development enquiry was issued to United Utilities and the response is enclosed within *Appendix C*.

United Utilities have advised that the foul will be allowed to drain to the public combined sewer network at an unrestricted rate. The connection(s) to the public sewer can be at a point(s) convenient to the development.

The current proposal includes collecting the foul drainage from each residence via a piped system and discharging via a single connection to the existing 900x525 combined public sewer within Trafford Street, north of the site, at an unrestricted rate.

Any connection to the public sewer will require a Section 106 Agreement with United Utilities.

The proposed drainage strategy plan is enclosed in *Appendix E*.

7. Conclusion

The proposed site of 325 Deansgate is currently developed and houses the Deansgate Tavern, commercial premise Boss Furniture with a showroom and warehouse, a private carpark and a brick viaduct which supports the Metrolink Tramway and railway infrastructure. The site is classified as brownfield.

The underlying geological succession of the site comprises of a superficial deposit of Glaciofluvial Sheets (Devensian sands and gravel) and a bedrock of Chester Pebble Beds Formation. Made ground is indicated to underlie the site associated with the previous use as railway sidings. The Environment Agency classifies the superficial deposits in this area as a Secondary A Aquifer and the bedrock as a Principal Aquifer.

The proposed development site is within the Level 2 SFRA 'Critical Drainage Area' (CDA). Site within the CDA can have complex surface water flooding problems and would benefit from a Surface Water Management Plan and Drainage Strategy.

The development is located within Flood Zone 1, which is characterised by low probability of a flood occurring. Residential developments, such as this one, are classified as 'more vulnerable' by the NPPF, however as it is within Flood Zone 1 the development is deemed appropriate and neither the sequential nor the exception test is required.

From evidence collated, the flood risk proposed to the development has been summarised as low.

Pre-development/existing runoff rates have been calculated at 4.88L/s, based on a 100% site drainage area of 0.067hectares.

Surface Water Discharge for the development will be limited to the 1 in 1yr event rate of 2.4 L/s and will consider an allowance of 40% climate change for all calculations. Flows will be conveyed across site in a traditional pipe system to geocellular storage units beneath the viaduct before discharging to the Rochdale Canal.

The nearest water body to the development is the Rochdale Canal, which runs beneath the south end of the site through the Gaythorne Tunnel. This is the proposed discharge point and a connection enquiry is currently underway with the Canal & River Trust.

The required attenuation volume has been calculated at 23m³

The foul water drainage from each development will be collected via a piped system and discharge via a single connection to the existing 900x525mm combined public sewer within Trafford Street, north of the site, at an unrestricted rate.

Appendix A Sewer Records

Civic Engineers

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

FAO:

How to contact us:

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

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

**Your Ref: PO 2285
Our Ref: UUPS-ORD-42497
Date: 12/07/2018**

Dear Sirs

Location: POGGENPOHL GROUP UK LTD 323-325 DEANS_GATE, MANCHESTER, M3 4LQ

I acknowledge with thanks your request dated 10/07/2018 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

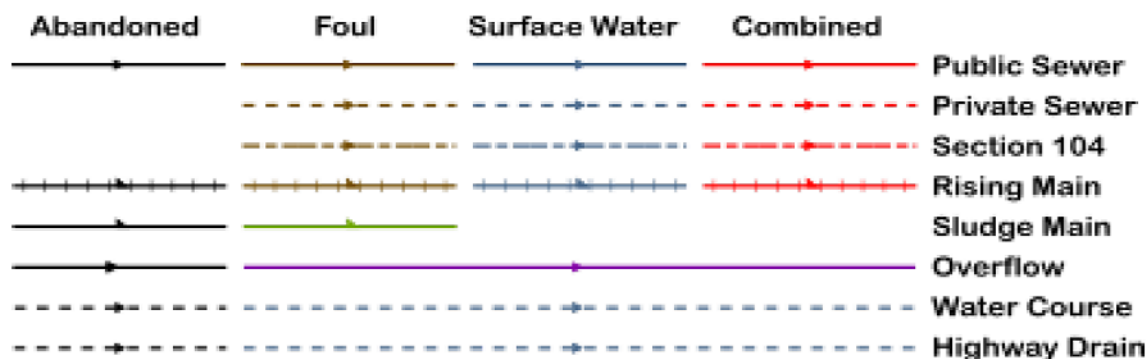
TERMS AND CONDITIONS - WASTERWATER AND WATER DISTRIBUTION PLANS

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

TERMS AND CONDITIONS:

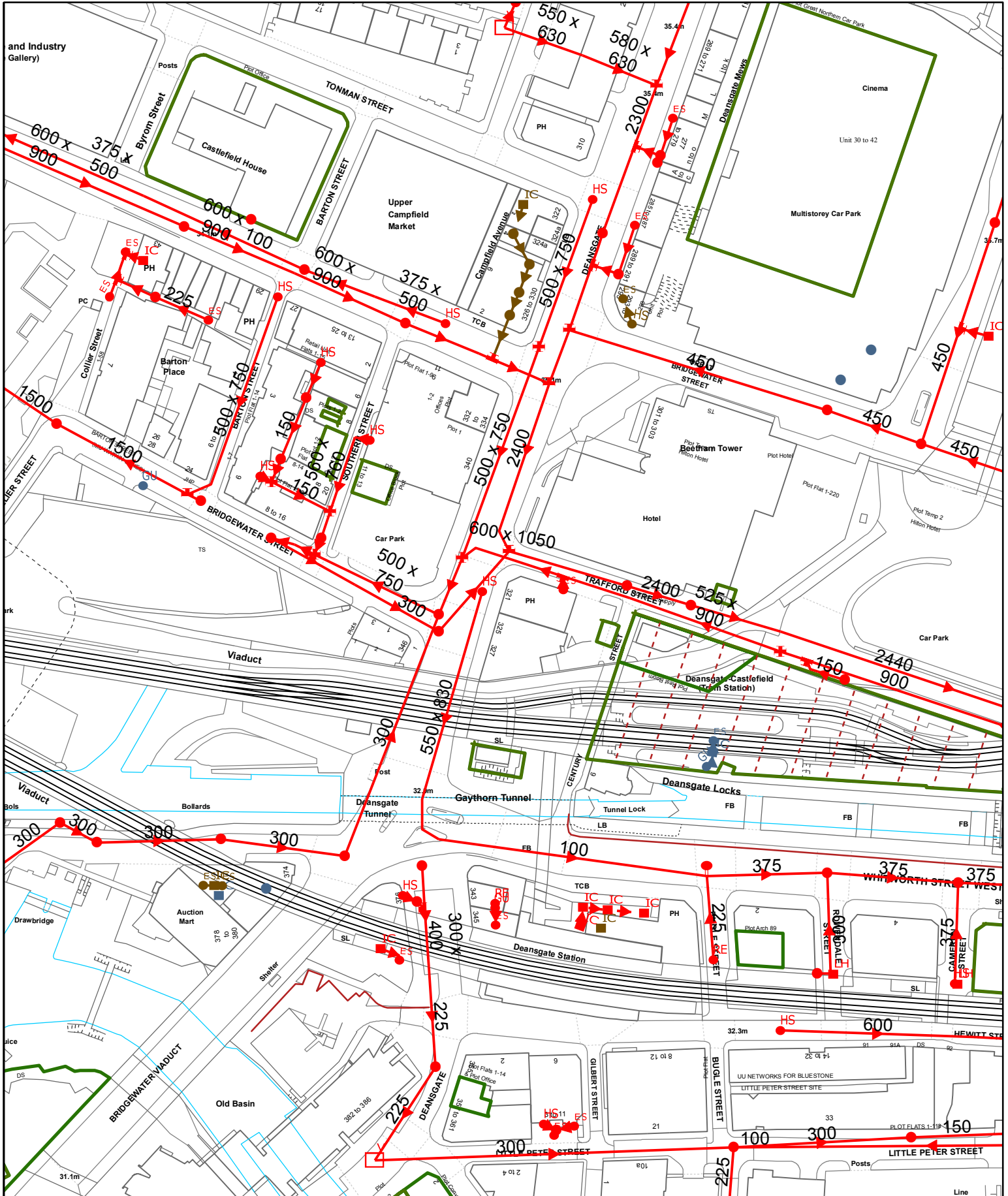
- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out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

Wastewater Symbolology



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

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



Date: 12/07/2018

Extract from Map of Public Sewers



Printed By:
 Property Searches Pogginpohl Group Uk Ltd 323-325 Deansgate Manchester M3 4L

The position of this underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private pipes, sewers or drains may not be recorded. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown. Crown copyright and database rights [2016] Ordnance Survey 100022432.

United Utilities Water Limited 2014 The plan is based on the Ordnance Survey Map with the sanction of Controller of H.M. Stationery Office. Crown and Utilities copyrights are reserved. Unauthorised reproduction will infringe these copyrights.

Clean Water Symbolology

Proposed	Abandoned	Live	
			Distribution Main
			Trunk Main
			Comms Pipe
			Private Pipe
			Concessionary Service
			Raw Water
			LDTM Raw Water
			LDTM Treated Water
			Air Valve
			AC Valve, open
			AC Valve, closed
			CC Valve, open
			CC Valve, closed
			Non Return Valve
			Pressure Management Valve
			OMS Valve
			Stop Tap
			Flow Meter
			Domestic Meter
			Commercial Meter
			Pump
			Hydrant
			Fire Hydrant
			Anode
			Chlorination Point
			De-chlorination Point
			Strainer Point
			Access Point
			Hatch Box
			IP Point
			Sampling Station
			Logger Box
			Bore Hole
			Inlet Point
			Bulk Supply Point
			End Cap
			Site Termination
			Change of Characteristic
			Condition Report
			<u>Property Types</u>
			Water Tower
			Valve House
			Booster Pumping Station
			Intake Pumping Station
			Water Treatment Works
			Supply Reservoir
			Service Reservoir
			Impounding Reservoir
			Pipe Bridge

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

United Utilities Water Limited 2014 The plan is based on the Ordnance Survey Map with the sanction of Controller of H.M.Stationery Office. Crown and Utilities copyrights are reserved. Unauthorised reproduction will infringe these copyrights.

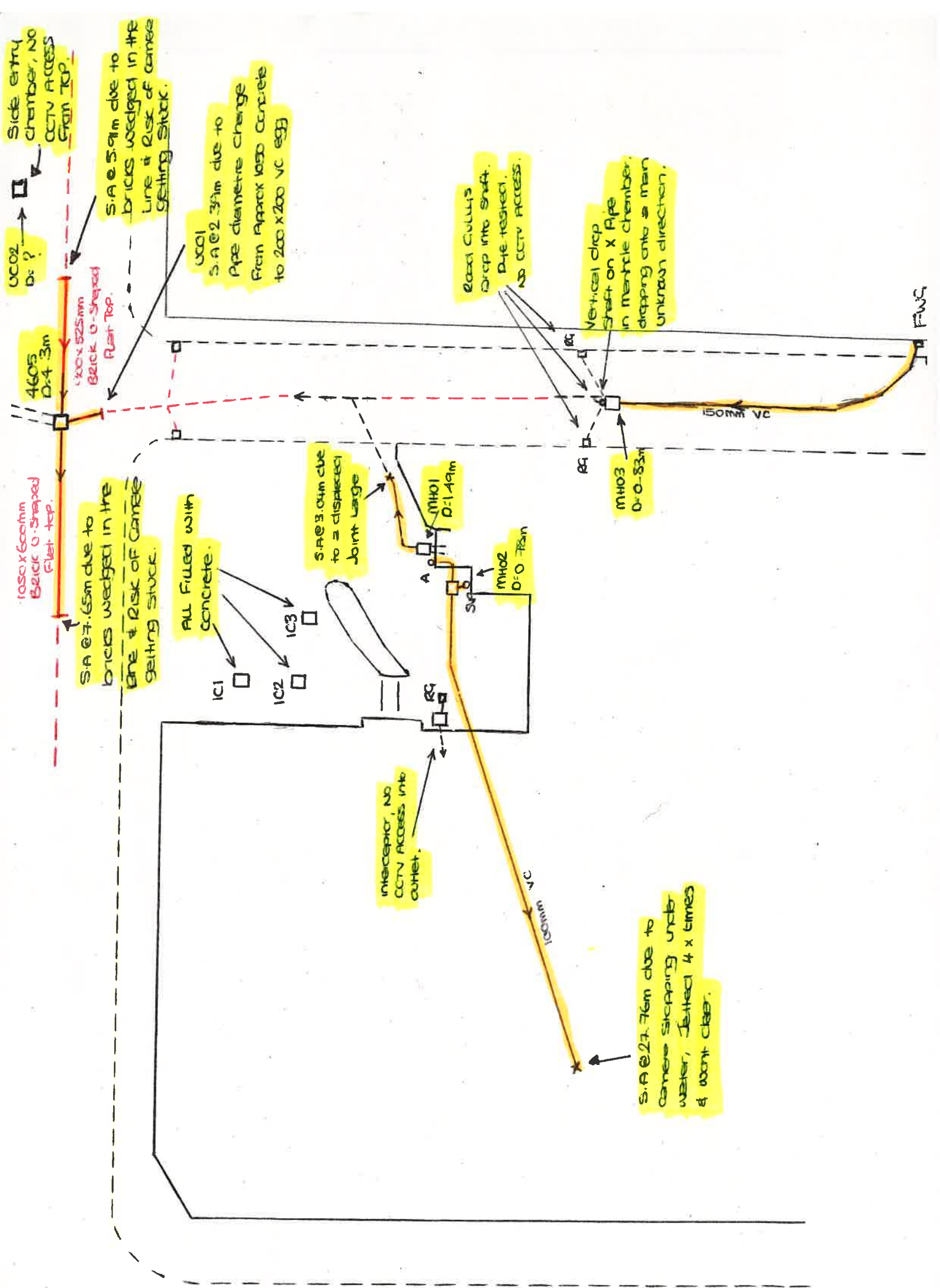


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Project Name	Project Number	Project Date
ASK DEANS_GATE LTD PJ309543 325 DEANS_GATE MANCHESTER		19/09/2018

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Section: 4; SVP > MH02 (SVPX)	6
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Project Information

Project Name	Project Number	Project Date
ASK DEANS_GATE LTD PJ309543 325 DEANS_GATE MANCHESTER		19/09/2018

Client

Company: Ask Deansgate Limited
Department: ASK Real Estate
Street: 3rd Floor Clarence House
Town or City: Manchester
Post Code: M2 4DW

Site

Company: ASK Deansgate Limited
Street: 325 Deansgate
Town or City: Manchester
Post Code: M3 4LQ

Contractor

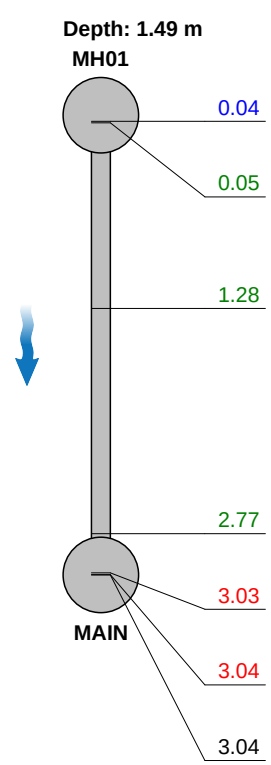
Company: Lanes Group Plc
Contact: Paul Lynch
Department: Regional Manager
Street: 300 Lansdowne Road, Eccles
Town or City: Manchester, M30 9PJ
Phone: 0161 788 2222
Email: northwestops@lanesgroup.co.uk

Section Inspection - 19/09/2018 - MH01X

Section 1	Inspection 1	Date 19/09/18	Time 10:38	Client's Job Ref Not Specified	Weather Not Specified	Pre Cleaned Y	PLR MH01X
Operator Not Specified		Vehicle Not Specified		Camera Not Specified	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Town or Village:	Manchester City Centre	Inspection Direction:	Downstream	Upstream Node:	MH01
Road:	Off Trafford Rd	Inspected Length:	3.00 m	Upstream Pipe Depth:	1.490 m
Location:	Other pedestrian area	Total Length:	3.04 m	Downstream Node:	MAIN
Surface Type:		Joint Length:	0.00 m	Downstream Pipe Depth:	
Use:	Surface water	Pipe Shape:	Circular		
Type of Pipe:	Gravity drain/sewer	Dia/Height:	225 mm		
Year Constructed:		Pipe Material:	Vitrified clay pipe (i.e. all clayware)		
Flow Control:		Lining Type:	No Lining		
Inspection Purpose:	Routine inspection of condition		Lining Material:	No Lining	

Comments:
Recommendations:

Scale: 1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
						
	0.04	IC	Start node type, inspection chamber, reference number: MH01	00:00:00		
	0.05	WL	Water level, 5% of the vertical dimension			
	1.28	LR	Line deviates right	00:00:12		
	2.77	LL	Line deviates left	00:00:45		
	3.03	JDL	Joint displaced, large	00:02:29		1
	3.04	FCJ	Fracture, circumferential at joint from 6 o'clock to 7 o'clock	00:02:32		3
	3.04	SA	Survey abandoned: DUE TO LARGE DISPLACED JOINT	00:02:53		

Structural Defects					Construction Features				
Service & Operational Observations					Miscellaneous Features				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
2	42.0	13.8	42.0	3.0	0	0.0	0.0	0.0	1.0

Section Pictures - 19/09/2018 - MH01X

Section 1	Inspection Direction Downstream	PLR MH01X	Client's Job Ref	Contractor's Job Ref
--------------	------------------------------------	--------------	------------------	----------------------



MH01X_fa4ee0e4-04f6-48b5-a3ee-063efc016c2a_20180919_105103_342.jpg, 00:02:29, 3.03 m
 Joint displaced, large



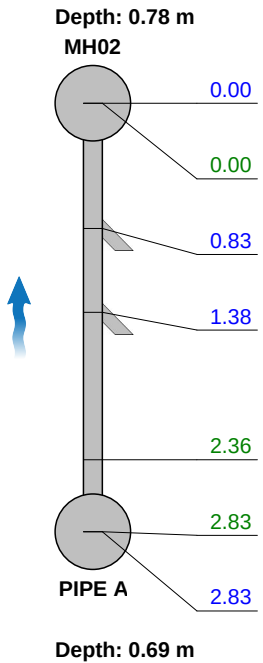
MH01X_f148549a-2cab-4964-9756-ad63c6ee8c38_20180919_105106_079.jpg, 00:02:32, 3.04 m
 Fracture, circumferential at joint from 6 o'clock to 7 o'clock

Section Inspection - 19/09/2018 - PIPE AX

Section 2	Inspection 2	Date 19/09/18	Time 10:53	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Y	PLR PIPE AX
Operator		Vehicle PO18 WHE		Camera Ipek Rovvion	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Town or Village:	Manchester City Centre	Inspection Direction:	Upstream	Upstream Node:	PIPE A
Road:	Off Trafford Rd	Inspected Length:	2.83 m	Upstream Pipe Depth:	0.690 m
Location:	Other pedestrian area	Total Length:	2.83 m	Downstream Node:	MH02
Surface Type:		Joint Length:	0.00 m	Downstream Pipe Depth:	0.780 m
Use:	Combined	Pipe Shape:	Circular		
Type of Pipe:	Gravity drain/sewer	Dia/Height:	100 mm		
Year Constructed:		Pipe Material:	Vitrified clay pipe (i.e. all clayware)		
Flow Control:	No flow control	Lining Type:	No Lining		
Inspection Purpose:	Routine inspection of condition	Lining Material:	No Lining		

Comments:
Recommendations:

Scale: 1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
						
	0.00	IC	Start node type, inspection chamber, reference number: MH02	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:03:15		
	0.83	JN	Junction at 9 o'clock, diameter: 100mm	00:00:07		
	1.38	JN	Junction at 10 o'clock, diameter: 100mm	00:00:18		
	2.36	LL	Line deviates left	00:00:30		
	2.83	LU	Line deviates up	00:00:40		
	2.83	OCF	Finish node type, other special chamber, reference number: PIPE A: OLD SVP/RWP	00:00:41		

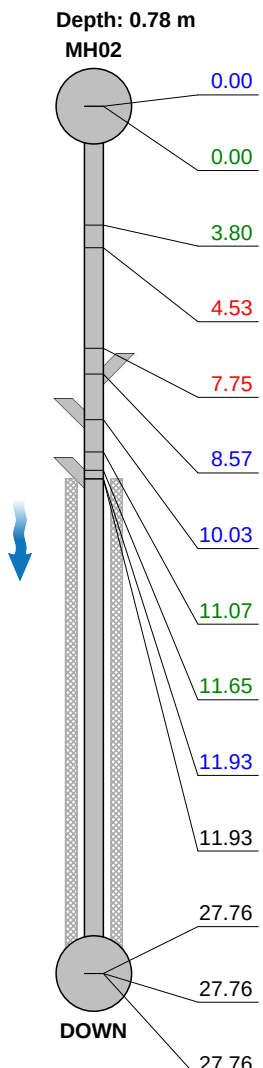
Structural Defects					Construction Features				
Service & Operational Observations					Miscellaneous Features				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 19/09/2018 - MH02X

Section 3	Inspection 3	Date 19/09/18	Time 10:57	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Y	PLR MH02X
Operator		Vehicle PO18 WHE		Camera Ipek Rovvion	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Town or Village:	Manchester City Centre	Inspection Direction:	Downstream	Upstream Node:	MH02
Road:	Off Trafford Rd	Inspected Length:	27.76 m	Upstream Pipe Depth:	0.780 m
Location:	Other pedestrian area	Total Length:	27.76 m	Downstream Node:	DOWN
Surface Type:	Asphalt Highway	Joint Length:	0.00 m	Downstream Pipe Depth:	
Use:	Combined	Pipe Shape:	Circular		
Type of Pipe:	Gravity drain/sewer	Dia/Height:	100 mm		
Year Constructed:		Pipe Material:	Vitrified clay pipe (i.e. all clayware)		
Flow Control:	No flow control	Lining Type:	No Lining		
Inspection Purpose:	Routine inspection of condition	Lining Material:	No Lining		

Comments:
Recommendations:

Scale: 1:242	Position [m]	Code	Observation	MPEG	Photo	Grade																																																																																																		
Depth: 0.78 m MH02  Depth: m <table><tr><td>0.00</td><td>IC</td><td>Start node type, inspection chamber, reference number: MH02</td><td>00:00:00</td><td></td><td></td><td></td></tr><tr><td>0.00</td><td>WL</td><td>Water level, 5% of the vertical dimension</td><td>00:00:19</td><td></td><td></td><td></td></tr><tr><td>3.80</td><td>LL</td><td>Line deviates left</td><td>00:00:19</td><td></td><td></td><td></td></tr><tr><td>4.53</td><td>FCJ</td><td>Fracture, circumferential at joint from 10 o'clock to 2 o'clock</td><td>00:00:31</td><td></td><td></td><td>3</td></tr><tr><td>7.75</td><td>FCJ</td><td>Fracture, circumferential at joint from 10 o'clock to 2 o'clock</td><td>00:01:00</td><td></td><td></td><td>3</td></tr><tr><td>8.57</td><td>JN</td><td>Junction at 9 o'clock, diameter: 100mm</td><td>00:01:09</td><td></td><td></td><td></td></tr><tr><td>10.03</td><td>JN</td><td>Junction at 3 o'clock, diameter: 100mm</td><td>00:01:24</td><td></td><td></td><td></td></tr><tr><td>11.07</td><td>WL</td><td>Water level, 15% of the vertical dimension</td><td>00:01:34</td><td></td><td></td><td></td></tr><tr><td>11.65</td><td>WL</td><td>Water level, 40% of the vertical dimension</td><td>00:01:43</td><td></td><td></td><td></td></tr><tr><td>11.93</td><td>JN</td><td>Junction at 3 o'clock, diameter: 100mm</td><td>00:01:48</td><td></td><td></td><td></td></tr><tr><td>11.93</td><td>S01</td><td>CUW</td><td>Loss of vision, camera under water, start</td><td>00:01:50</td><td></td><td></td></tr><tr><td>27.76</td><td>F01</td><td>CUW</td><td>Loss of vision, camera under water, finish</td><td>00:04:58</td><td></td><td></td></tr><tr><td>27.76</td><td>SA</td><td>Survey abandoned: DUE TO CAMERA STOPPING UNDER WATER</td><td>00:05:20</td><td></td><td></td><td></td></tr><tr><td>27.76</td><td></td><td>End of pipe</td><td></td><td></td><td></td><td></td></tr></table>							0.00	IC	Start node type, inspection chamber, reference number: MH02	00:00:00				0.00	WL	Water level, 5% of the vertical dimension	00:00:19				3.80	LL	Line deviates left	00:00:19				4.53	FCJ	Fracture, circumferential at joint from 10 o'clock to 2 o'clock	00:00:31			3	7.75	FCJ	Fracture, circumferential at joint from 10 o'clock to 2 o'clock	00:01:00			3	8.57	JN	Junction at 9 o'clock, diameter: 100mm	00:01:09				10.03	JN	Junction at 3 o'clock, diameter: 100mm	00:01:24				11.07	WL	Water level, 15% of the vertical dimension	00:01:34				11.65	WL	Water level, 40% of the vertical dimension	00:01:43				11.93	JN	Junction at 3 o'clock, diameter: 100mm	00:01:48				11.93	S01	CUW	Loss of vision, camera under water, start	00:01:50			27.76	F01	CUW	Loss of vision, camera under water, finish	00:04:58			27.76	SA	Survey abandoned: DUE TO CAMERA STOPPING UNDER WATER	00:05:20				27.76		End of pipe				
0.00	IC	Start node type, inspection chamber, reference number: MH02	00:00:00																																																																																																					
0.00	WL	Water level, 5% of the vertical dimension	00:00:19																																																																																																					
3.80	LL	Line deviates left	00:00:19																																																																																																					
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27.76	SA	Survey abandoned: DUE TO CAMERA STOPPING UNDER WATER	00:05:20																																																																																																					
27.76		End of pipe																																																																																																						

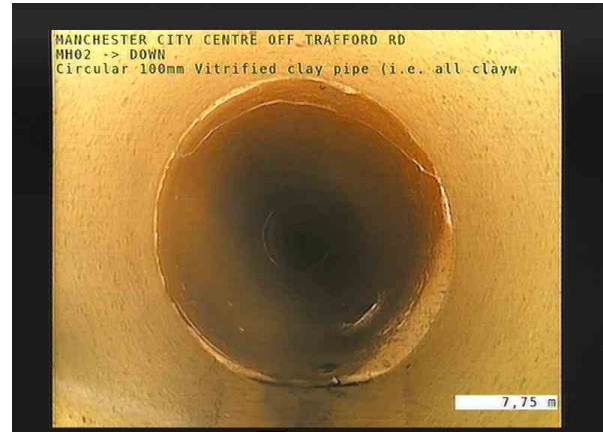
Structural Defects					Construction Features				
Service & Operational Observations					Miscellaneous Features				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
2	40.0	2.9	80.0	3.0	0	0.0	0.0	0.0	1.0

Section Pictures - 19/09/2018 - MH02X

Section 3	Inspection Direction Downstream	PLR MH02X	Client's Job Ref	Contractor's Job Ref
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MH02X_332de3c9-d6b1-4ed2-be62-5121e2c691b1_20180919_105840_365.jpg, 00:00:31, 4.53 m
 Fracture, circumferential at joint from 10 o'clock to 2 o'clock



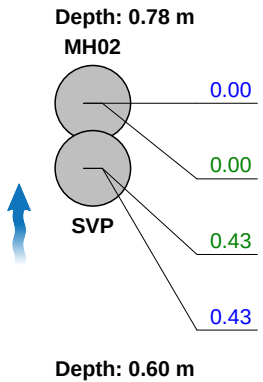
MH02X_3feb38c9-40f8-4472-a8c0-6c502ebc2e61_20180919_105914_714.jpg, 00:01:00, 7.75 m
 Fracture, circumferential at joint from 10 o'clock to 2 o'clock

Section Inspection - 19/09/2018 - SVPX

Section 4	Inspection 4	Date 19/09/18	Time 11:18	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Y	PLR SVPX
Operator		Vehicle PO18 WHE		Camera Ipek Rovvion	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Town or Village:	Manchester City Centre	Inspection Direction:	Upstream	Upstream Node:	SVP
Road:	Off Trafford Rd	Inspected Length:	0.43 m	Upstream Pipe Depth:	0.600 m
Location:	Other pedestrian area	Total Length:	0.43 m	Downstream Node:	MH02
Surface Type:	Asphalt Highway	Joint Length:	0.00 m	Downstream Pipe Depth:	0.780 m
Use:	Combined	Pipe Shape:	Circular		
Type of Pipe:	Gravity drain/sewer	Dia/Height:	100 mm		
Year Constructed:		Pipe Material:	Polyvinyl chloride		
Flow Control:	No flow control	Lining Type:	No Lining		
Inspection Purpose:		Lining Material:	No Lining		

Comments:
Recommendations:

Scale: 1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
						
	0.00	IC	Start node type, inspection chamber, reference number: MH02	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:53		
	0.43	LU	Line deviates up	00:00:12		
	0.43	BRF	Finish node type, major connection without manhole, reference number: SVP	00:00:13		

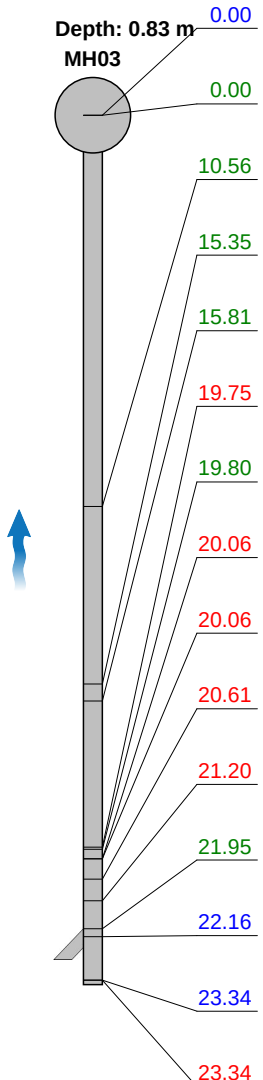
Structural Defects					Construction Features				
Service & Operational Observations					Miscellaneous Features				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 19/09/2018 - PIPE AX

Section 5	Inspection 5	Date 19/09/18	Time 12:00	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Y	PLR PIPE AX
Operator		Vehicle PO18 WHE		Camera Ipek Rovvion	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Town or Village:	Manchester City Centre	Inspection Direction:	Upstream	Upstream Node:	PIPE A
Road:	Century St	Inspected Length:	23.58 m	Upstream Pipe Depth:	0.820 m
Location:	Other pedestrian area	Total Length:	23.58 m	Downstream Node:	MH03
Surface Type:	Cobbles	Joint Length:	0.00 m	Downstream Pipe Depth:	0.830 m
Use:	Combined	Pipe Shape:	Circular		
Type of Pipe:	Gravity drain/sewer	Dia/Height:	150 mm		
Year Constructed:		Pipe Material:	Vitrified clay pipe (i.e. all clayware)		
Flow Control:	No flow control	Lining Type:	No Lining		
Inspection Purpose:	Routine inspection of condition	Lining Material:	No Lining		

Comments:
Recommendations:

Scale: 1:204	Position [m]	Code	Observation	MPEG	Photo	Grade
	0.00	MH	Start node type, manhole, reference number: MH03	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
	10.56	WL	Water level, 15% of the vertical dimension	00:00:59		
	15.35	LL	Line deviates left	00:01:29		
	15.81	WL	Water level, 5% of the vertical dimension	00:01:35		
	19.75	FCJ	Fracture, circumferential at joint from 9 o'clock to 4 o'clock	00:02:02		3
	19.80	LL	Line deviates left	00:01:57		
	20.06	B	Broken pipe from 12 o'clock to 12 o'clock	00:02:14		4
	20.06	D	Deformed drain or sewer, 10%	00:02:17		4
	20.61	FC	Fracture, circumferential from 12 o'clock to 12 o'clock	00:02:24		3
	21.20	H	Hole in drain or sewer at 12 o'clock	00:02:33		4
	21.95	LL	Line deviates left	00:02:43		
	22.16	JN	Junction at 2 o'clock, diameter: 100mm	00:02:48		
	23.34	MCPVC	Material changes to polyvinyl chloride	00:03:03		
	23.34	JDL	Joint displaced, large	00:03:04		1

Section Inspection - 19/09/2018 - PIPE AX

Section 5	Inspection 5	Date 19/09/18	Time 12:00	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Y	PLR PIPE AX
Operator		Vehicle PO18 WHE		Camera Ipek Rovvion	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Scale:		Position [m] <u>23.58</u>	Code LU	Observation Line deviates up	MPEG 00:03:11	Photo	Grade
		<u>23.58</u>	OCF	Finish node type, other special chamber, reference number: PIPE A: RWG	00:03:12		

Structural Defects					Construction Features				
Service & Operational Observations					Miscellaneous Features				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
6	160.0	13.7	322.0	4.0	0	0.0	0.0	0.0	1.0

Section Pictures - 19/09/2018 - PIPE AX

Section	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
5	Upstream	PIPE AX		



PIPE

AX_45f46c9f-8aba-485d-a224-49ef62f53a38_20180919_1206
18_914.jpg, 00:02:02, 19.75 m
Fracture, circumferential at joint from 9 o'clock to 4 o'clock



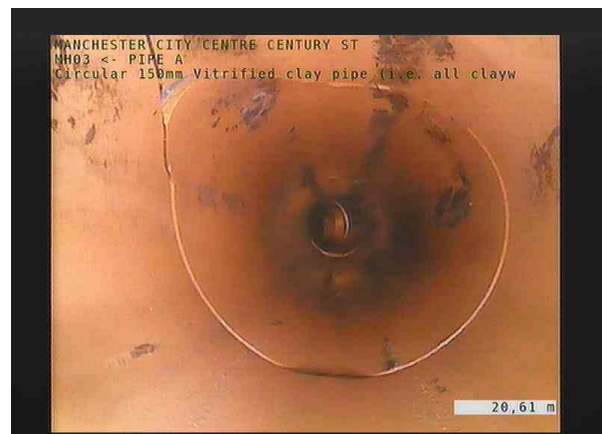
PIPE

AX_f18fbfd2-0ae9-4ccd-8059-687fc97ca642_20180919_1206
34_229.jpg, 00:02:14, 20.06 m
Broken pipe from 12 o'clock to 12 o'clock



PIPE

AX_8033f408-84c0-4661-829d-c2975ae7ad0b_20180919_12
0639_653.jpg, 00:02:17, 20.06 m
Deformed drain or sewer, 10%



PIPE

AX_9dbd62e9-99f6-4ff6-a157-f2430d4cba75_20180919_1206
50_689.jpg, 00:02:24, 20.61 m
Fracture, circumferential from 12 o'clock to 12 o'clock

Section Pictures - 19/09/2018 - PIPE AX

Section	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
5	Upstream	PIPE AX		



PIPE
 AX_c69fb965-b39e-4ee7-b7d1-dbf41f212de9_20180919_120705_047.jpg, 00:02:33, 21.20 m
 Hole in drain or sewer at 12 o'clock



PIPE
 AX_0e5fd09a-17f5-49d6-8061-8ff7978b154d_20180919_120755_130.jpg, 00:03:04, 23.34 m
 Joint displaced, large

Section Inspection - 19/09/2018 - MH03X

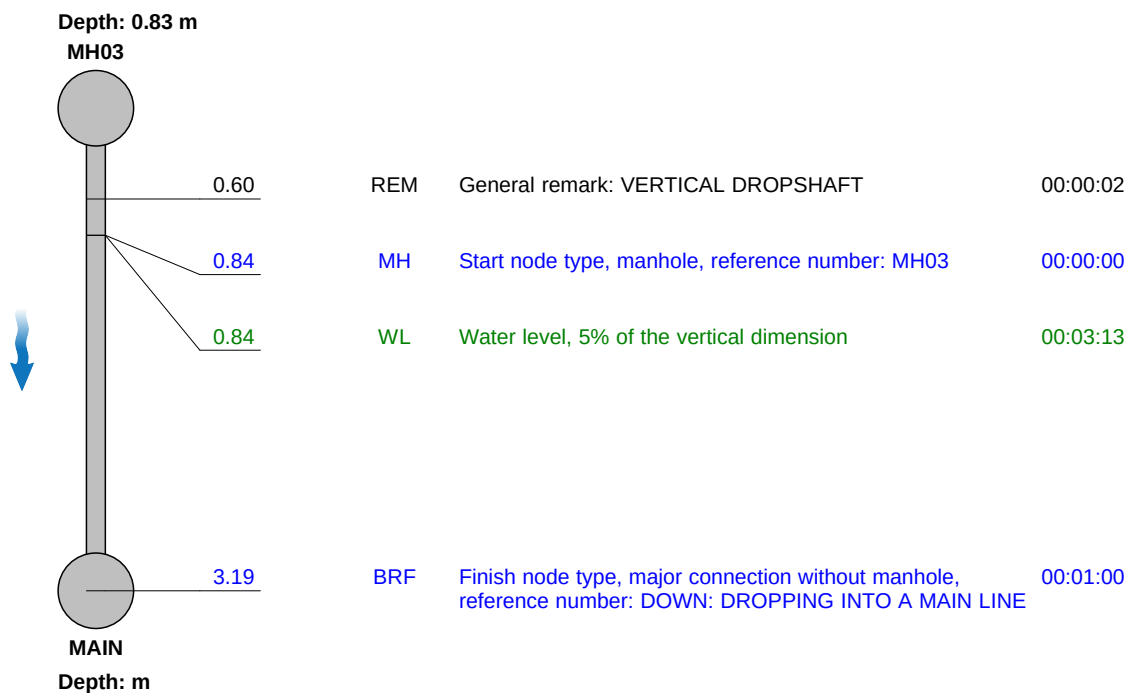
Section 6	Inspection 6	Date 19/09/18	Time 12:13	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Y	PLR MH03X
Operator		Vehicle PO18 WHE		Camera Ipek Rovvion	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Town or Village:	Manchester City Centre	Inspection Direction:	Downstream	Upstream Node:	MH03
Road:	Century St	Inspected Length:	2.59 m	Upstream Pipe Depth:	0.830 m
Location:	Other pedestrian area	Total Length:	3.19 m	Downstream Node:	MAIN
Surface Type:	Cobbles	Joint Length:	0.00 m	Downstream Pipe Depth:	
Use:	Combined	Pipe Shape:	Circular		
Type of Pipe:	Gravity drain/sewer	Dia/Height:	150 mm		
Year Constructed:		Pipe Material:	Vitrified clay pipe (i.e. all clayware)		
Flow Control:	No flow control	Lining Type:	No Lining		
Inspection Purpose:	Routine inspection of condition	Lining Material:	No Lining		

Comments:

Recommendations:

Scale: 1:50 Position [m] Code Observation MPEG Photo Grade



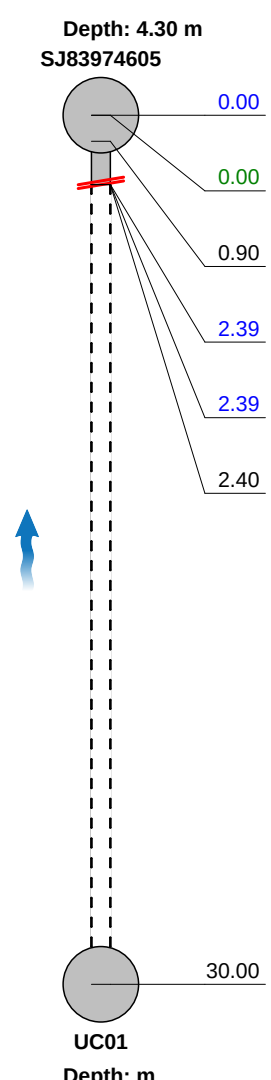
Structural Defects					Construction Features				
Service & Operational Observations					Miscellaneous Features				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 25/09/2018 - UC01X

Section 7	Inspection 7	Date 25/09/18	Time 20:26	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Y	PLR UC01X
Operator DD		Vehicle PO18 WHE		Camera Ipek Rovvion	Preset Length Not Specified	Criticality Grade Category A	Alternative ID Not Specified

Town or Village:	Manchester City Centre	Inspection Direction:	Upstream	Upstream Node:	UC01
Road:	Off Trafford Rd	Inspected Length:	2.40 m	Upstream Pipe Depth:	
Location:	Other pedestrian area	Total Length:	30.00 m	Downstream Node:	SJ83974605
Surface Type:	Asphalt Highway	Joint Length:	0.00 m	Downstream Pipe Depth:	4.300 m
Use:	Combined	Pipe Shape:	Circular		
Type of Pipe:	Gravity drain/sewer	Dia/Height:			
Year Constructed:		Pipe Material:	Concrete		
Flow Control:	Other (state in remarks)	Lining Type:	No Lining		
Inspection Purpose:	Routine inspection of condition		Lining Material:	No Lining	

Comments:
Recommendations:

Scale: 1:261	Position [m]	Code	Observation	MPEG	Photo	Grade
						
	0.00	MH	Start node type, manhole, reference number: UC01	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
	0.90	REM	General remark: UNKNOWN PIPE SIZE ,NO MAN ENTRY INTO CHAMBER AS PERMIT STATED	00:00:05		
	2.39	MCVC	Material changes to vitrified clay	00:00:36		
	2.39	SCE	Shape changes to egg-shaped, new sizes, 200mm high, 200mm wide	00:00:46		
	2.40	SA	Survey abandoned: DUE TO THE DIAMETER CHANGE	00:00:40		
	30.00		End of pipe			

Structural Defects					Construction Features				
Service & Operational Observations					Miscellaneous Features				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Pictures - 25/09/2018 - UC01X

Section	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
7	Upstream	UC01X		



UC01X_abf81431-11e9-44ac-b47e-297de3c7988c_20180925
 _210252_543.jpg, 00:00:46, 2.39 m
 Shape changes to egg-shaped, new sizes, 200mm high,
 200mm wide

Section Inspection - 25/09/2018 - SJ83975609X

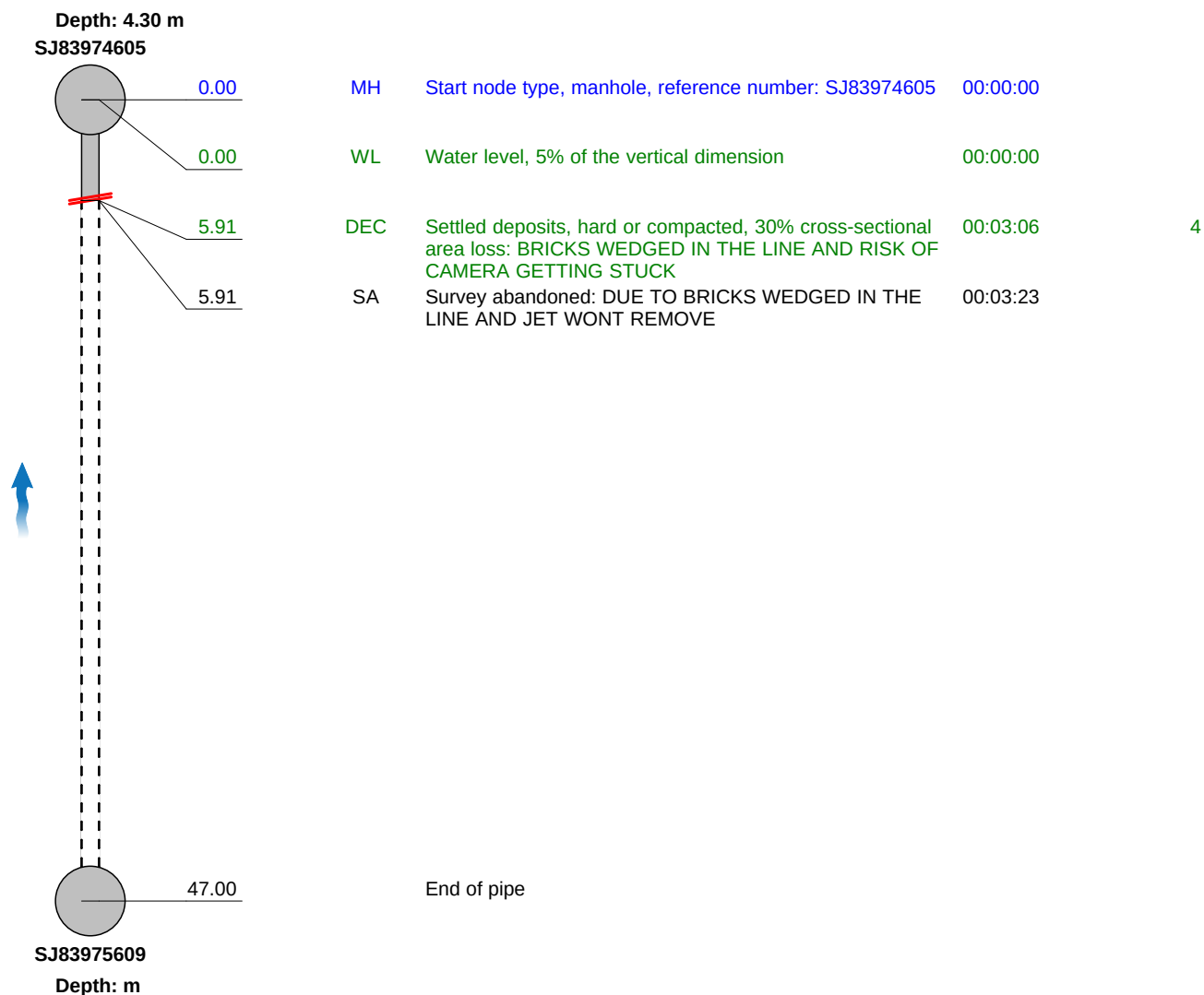
Section 8	Inspection 8	Date 25/09/18	Time 20:38	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Y	PLR SJ83975609X
Operator DD		Vehicle PO18 WHE		Camera Ipek Rovvion	Preset Length Not Specified	Criticality Grade Category A	Alternative ID Not Specified

Town or Village:	Manchester City Centre	Inspection Direction:	Upstream	Upstream Node:	SJ83975609
Road:	Off Trafford Rd	Inspected Length:	5.91 m	Upstream Pipe Depth:	
Location:	Other pedestrian area	Total Length:	47.00 m	Downstream Node:	SJ83974605
Surface Type:	Asphalt Highway	Joint Length:	0.00 m	Downstream Pipe Depth:	4.300 m
Use:	Combined	Pipe Shape:	U-Shaped with flat top		
Type of Pipe:	Gravity drain/sewer	Dia/Height:	900 mm	Width:	525 mm
Year Constructed:		Pipe Material:	Brick		
Flow Control:	Other (state in remarks)	Lining Type:	No Lining		
Inspection Purpose:	Routine inspection of condition		Lining Material:	No Lining	

Comments:

Recommendations:

Scale: 1:409 Position [m] Code Observation MPEG Photo Grade



Structural Defects					Construction Features				
Service & Operational Observations					Miscellaneous Features				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	1	5.0	0.1	5.0	4.0

Section Pictures - 25/09/2018 - SJ83975609X

Section	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
8	Upstream	SJ83975609X		



SJ83975609X_45d3f61b-c28b-43cc-8abd-9c57f23fda29_20180925_213249_967.jpg, 00:03:06, 5.91 m
 Settled deposits, hard or compacted, 30% cross-sectional area loss

Section Inspection - 25/09/2018 - SJ83974605X

Section 9	Inspection 9	Date 25/09/18	Time 21:07	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Y	PLR SJ83974605X
Operator DD		Vehicle PO18 WHE		Camera Ipek Rovvion	Preset Length Not Specified	Criticality Grade Category A	Alternative ID Not Specified

Town or Village:	Manchester City Centre	Inspection Direction:	Downstream	Upstream Node:	SJ83974605
Road:	Off Trafford Rd	Inspected Length:	7.65 m	Upstream Pipe Depth:	4.300 m
Location:	Other pedestrian area	Total Length:	50.00 m	Downstream Node:	SJ83974692
Surface Type:	Asphalt Highway	Joint Length:	0.00 m	Downstream Pipe Depth:	
Use:	Combined	Pipe Shape:	U-Shaped with flat top		
Type of Pipe:	Gravity drain/sewer	Dia/Height:	1,050 mm	Width:	600 mm
Year Constructed:		Pipe Material:	Brick		
Flow Control:	Other (state in remarks)	Lining Type:	No Lining		
Inspection Purpose:	Routine inspection of condition		Lining Material:	No Lining	

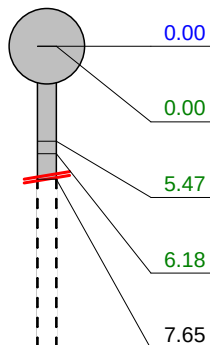
Comments:

Recommendations:

Scale: 1:435 Position [m] Code Observation MPEG Photo Grade

Depth: 4.30 m

SJ83974605



MH	Start node type, manhole, reference number: SJ83974605	00:00:00	
WL	Water level, 5% of the vertical dimension	00:00:33	
LR	Line deviates right: SLIGHT	00:00:39	
DEC	Settled deposits, hard or compacted, 15% cross-sectional area loss: BRICKS IN THE LINE	00:00:56	3
SA	Survey abandoned: DUE TO BRICKS WEDGED IN INVERT AND RISK OF CAMERA FALLING OVER AND GETTING STUCK AND JETTED LINE 5 TIMES AND	00:02:57	

End of pipe

SJ83974692

Depth: m

Structural Defects

Service & Operational Observations

Construction Features

Miscellaneous Features

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	1	2.0	0.0	2.0	3.0

Section Pictures - 25/09/2018 - SJ83974605X

Section	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
9	Downstream	SJ83974605X		



SJ83974605X_14a4666f-e670-42a3-990a-5f2f6a004e00_20180925_211438_410.jpg, 00:00:56, 6.18 m
 Settled deposits, hard or compacted, 15% cross-sectional area loss

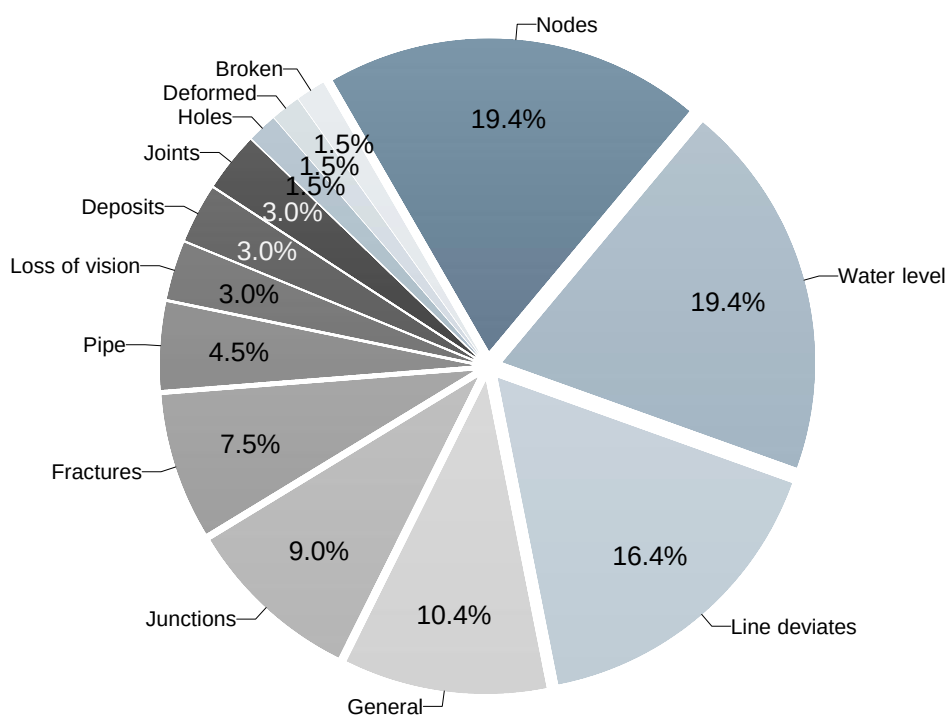


SJ83974605X_1d223fb6-9027-4041-af32-a7c8cb1d9ba4_20180925_211429_378.jpg, 00:02:57, 7.65 m
 Survey abandoned

Damage overview

Project Name	Project Number	Project Date
ASK DEANS_GATE LTD PJ309543 325 DEANS_GATE MANCHESTER		19/09/2018

Group	Count
Nodes	13
Water level	13
Line deviates	11
General	7
Junctions	6
Fractures	5
Pipe	3
Deposits	2
Joints	2
Loss of vision	2
Broken	1
Deformed	1
Holes	1



Inspection Summary

Project Name
ASK DEANS_GATE LTD PJ309543 325 DEANS_GATE MANCHESTER

Project Number

Project Date
19/09/2018

Node from:		MH01	MH02	MH03	PIPE A	PIPE A	SJ83974605
Node to:		MAIN	DOWN	MAIN	MH02	MH03	SJ83974692
Section height:		225.00	100.00	150.00	100.00	150.00	1050.00
Section length:		3.04	27.76	3.19	2.83	23.58	50.00
Inspected length:		3.00	27.76	2.59	2.83	23.58	7.65
Abandoned:		X	X				X
Broken:	0	0	0	0	0	1	0
Deformed:	0	0	0	0	0	1	0
Deposits:	0	0	0	0	0	0	1
Fractures:	0	1	2	0	0	2	0
General:	2	1	1	1	0	0	1
Holes:	0	0	0	0	0	1	0
Joints:	0	1	0	0	0	1	0
Junctions:	0	0	3	0	2	1	0
Line deviates:	0	2	1	0	2	4	1
Loss of vision:	0	0	2	0	0	0	0
Nodes:	1	1	1	2	2	2	1
Pipe:	2	0	0	0	0	1	0
Water level:	1	1	3	1	1	3	1
Total:	6	7	13	4	7	17	5

Inspection Summary

Project Name
ASK DEANS_GATE LTD PJ309543 325 DEANS_GATE MANCHESTER

Project Number

Project Date
19/09/2018

Node from:	SJ83975609	SVP	Total
Node to:	SJ83974605	MH02	
Section height:	900.00	100.00	
Section length:	47.00	0.43	187.84
Inspected length:	5.91	0.43	76.15
Abandoned:	X		
Broken:	0	0	1
Deformed:	0	0	1
Deposits:	1	0	2
Fractures:	0	0	5
General:	1	0	7
Holes:	0	0	1
Joints:	0	0	2
Junctions:	0	0	6
Line deviates:	0	1	11
Loss of vision:	0	0	2
Nodes:	1	2	13
Pipe:	0	0	3
Water level:	1	1	13
Total:	4	4	67

Appendix B Topographical Survey



- 1) ALL DIMENSIONS TO BE CHECKED ON SITE AND NOT SCALED FROM THIS DRAWING.
- 2) MALCOLM HOLLIS SHALL BE INFORMED IN WRITING OF ANY DISCREPANCIES.
- 3) ALL DIMENSIONS ARE IN METRES ONLY.
- 4) THE ORIGIN AND ORIENTATION OF THE SURVEY GRID RELATE TO A GPS TIE TO ORDNANCE SURVEY GRID.
- 5) ALL LEVELS ARE BASED ON A GPS TIE TO OS LEVEL DATUM.
- 6) PREVIOUS TOPOGRAPHICAL SURVEY PROVIDED BY SURVEY SYSTEMS, DRAWING NUMBER SSL:148R

[illegible]

REVISIONS		
	Date	Amendments

Ask Real Estate Limited

malcolm hollis
The Lexicon
10-12 Mount Street
Manchester M2 5NT
T 0161 832 7031
F 0161 828 0500
W malcolmhollis.com

Date 26.04.2018		Drawn By NH		
Scale 1:200 @A0		Checked TB		
Project	Originator	Volume/ Zone/dwg	Level	File type
65857	MHL	00	Z0	M2
Discipline/Title	Number		Status	Revision
G	10100		SO	---

Appendix C Consultation Responses

Eloise Moir-Mattox

From: Mark Heath <Mark.Heath@canalrivertrust.org.uk>
Sent: 21 September 2018 07:51
To: Eloise Moir-Mattox
Cc: enquiries northwest
Subject: RE: 325 Deansgate, Manchester (M3 4LQ)_Predevelopment Enquiry
Attachments: Appendix A.PDF

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Eloise,

RE:- Asset Data Request: 325 Deansgate, Manchester, Rochdale Canal

Further to your enquiry received 18 September 2018, Canal & River Trust can confirm the following:-

The Trust are aware of 3 overtopping events;

- Two events at Lock 91 (approximately 40m from the above site); overtopping at the lock, occurring in 2009 and 2010.
- Between locks 89 – 90 (approximately 300m from the above site); overtopping between the locks due to boater error. Event occurred in 2010.

Further, please note that the canal pound (lock to lock) adjacent to the site identified is approximately 110m in length, with an average width of 12m.

Please be aware that we are unable to comment on the flood risk to individual properties or developments and interpretation of the information provided in this e-mail is your responsibility.

For further advice on flood risk from canals we have included some generic guidance, please refer to Appendix A attached.

We trust this is satisfactory, however if you do require any further information please do not hesitate to contact the undersigned.

Kind regards

Mark
Mark Heath
Water Engineer, Water Management Team

(North West, Yorkshire & the North East, East Midlands Regions)

Canal & River Trust | **Red Bull Yard** | Congleton Road South | **Church Lawton** | Stoke-on-Trent | **ST7 3AP**

We have published our 2017 Annual Lockage Report - [take a look at this year's figures here!](#)

From: Eloise Moir-Mattox <eloise@civicengineers.com>
Sent: 18 September 2018 09:50
To: enquiries northwest <enquiries.northwest@canalrivertrust.org.uk>
Subject: 325 Deansgate, Manchester (M3 4LQ)_Predevelopment Enquiry

Dear Sir/Madam,

Eloise Moir-Mattox

From: O'Brien, Neil <Neil.O'Brien@uuplc.co.uk>
Sent: 04 October 2018 15:45
To: Eloise Moir-Mattox; Wastewater Developer Services
Subject: RE: 325 Deansgate, Manchester (M3 4LQ)_Predevelopment Enquiry - 4200022377

Dear Customer

We have carried out an assessment of your application which is based on the information provided; this pre development advice will be valid for 12 months

Foul will be allowed to drain to the public combined sewer network at an unrestricted rate. The connection(s) to the public sewer can be at a point(s) convenient to yourself

Surface water from this site should drain to either soak away or some other form of infiltration system or directly to watercourse. Discharge rates and consents must be discussed and agreed with all interested parties.

If you require any further guidance please follow <http://www.unitedutilities.com/builders-developers.aspx>

If you need a make further enquiry relating to this matter please send your enquiry to WastewaterDeveloperServices@uuplc.co.uk Please quote your DEXXXX/42XXXXXXX/GEXXXX reference number

Please Note:- enquiries sent to any other United Utilities e-mail address will be deleted.

Connection Application

Although we may discuss and agree discharge points & 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

<http://www.unitedutilities.com/connecting-public-sewer.aspx>

Please be aware that on site drainage must be designed in accordance with Building Regulations, National Planning Policy, Planning Conditions and local flood authority guidelines, we would recommend that you liaise and make suitable agreements with the relevant statutory bodies.

Regards

Neil O'Brien

Developer Engineer
Developer Services and Planning

Eloise Moir-Mattox

From: z.todorovic@manchester.gov.uk on behalf of floodriskmanagement@manchester.gov.uk
Sent: 21 September 2018 16:12
To: Eloise Moir-Mattox
Cc: floodriskmanagement@manchester.gov.uk
Subject: Re: 325 Deansgate, Manchester (M3 4LQ)_Predevelopment Enquiry
Attachments: Figure 1_Google Map.PNG; Manchester City Council - SuDS Requirement for Developers.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Eloise

In accordance with drainage hierarchy, option 2 is the preferred option for discharging surface water runoff.

As this site falls under major development category, we are attaching our guide for developers for your reference.

With regards to flooding incidents, we do not have record on flooding incidents on the proposed site or in immediate vicinity of the site.

Regards

Flood Risk Management
Highways Service, Growth and Neighbourhoods Directorate
Manchester City Council
Tel: 0161 219 6295
Email: floodriskmanagement@manchester.gov.uk
Web: <http://www.manchester.gov.uk/>

POSTAL ADDRESS: Manchester City Council, Public Realm, The Neighbourhood Service, PO Box 532, Town Hall, Manchester M60 2LA

Eloise Moir-Mattox <eloise@civicingineers.com> 18/09/2018 09:52	To	"floodriskmanagement@manchester.gov.uk" <floodriskmanagement@manchester.gov.uk>,
	cc	
	Subject	325 Deansgate, Manchester (M3 4LQ)_Predevelopment Enquiry

Dear Sir/Madam,

I am currently undertaking a flood risk assessment for a site at 325 Deansgate, Manchester (M3 4LQ), approximate NGR 383424, 397622.

The proposed development is a 22 storey, 250+ bedroom aparthotel with commercial/leisure space on the ground floor, covering an approximate area of 0.067ha (please see attached development proposal).

The current drainage strategy proposes one of two options. Option 1 includes discharging the foul and

Appendix D Surface Water Calculations

1. Introduction

The purpose of the calculations is to establish the pre-development peak 1 in 1-year surface water run-off rate for a development at 325 Deansgate, Manchester and to calculate what attenuation volume will be required, if the surface water run-off from the proposed site were to be restricted to a 50% betterment of the pre-development 1 in 1-year run-off rate, including 40% climate change.

2. Surface Water Catchment / Impermeable Areas

Overall Site Drainage Area	=	666m ² / 0.067 ha
Pre-Development Impermeable Area	=	666m ² / 0.067 ha (100% Impermeable)
Post-Development Impermeable Area	=	666m ² / 0.067 ha (100% impermeable)

3. Surface Water Calculation Variables

Data to calculate the pre-development 1 in 1-year surface water run-off rates and attenuation volumes are based on figures from the Flood Studies Report (FSR) data and Wallingford Procedure, which have been sourced from HR Wallingford.

The variables used to calculate the surface water run-off rates and required attenuation volumes are as follows:

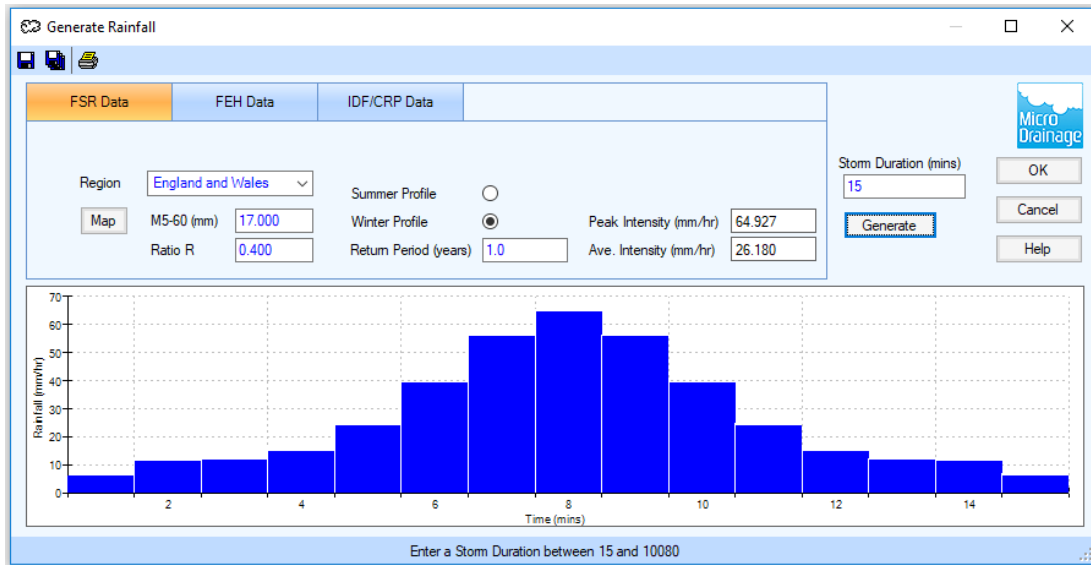
M5 – 60 (mm)	=	17.000
Ratio R	=	0.4
Cv (Summer)	=	0.750
Cv (Winter)	=	0.840
Time of Entry	=	5 minutes
Climate Change	=	0 - Pre-Development
	=	40% - Post Development

4. Pre-Development Peak 1 in 1 Year Surface Water Run-Off

Based on the above variables, and calculations undertaken using Average Intensity Rainfall data provided by Micro Drainage computer software, the pre-development development surface water run-off rate is as follows:

$$Q = 2.78 \times i \times (Area \times Impermeable \%) \quad \text{where } i = \text{Avg. Intensity (mm/hr)}$$

Pre-Development 1 in 1-Year Rate

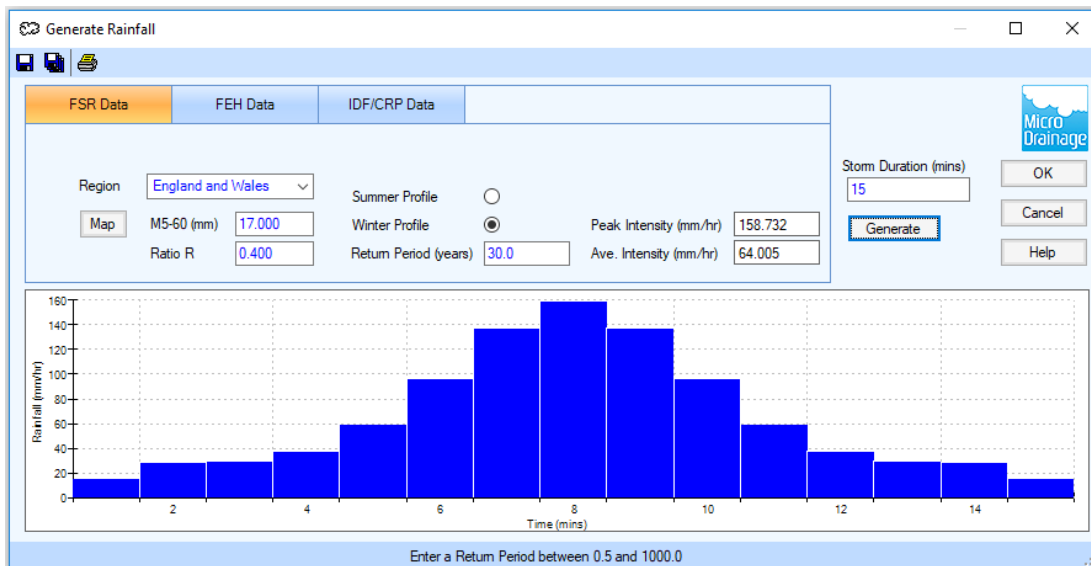


$$Q(1) = 2.78 \times i(1yr) \times (Area \times Impermeable \%)$$

$$Q(1) = 2.78 \times 26.18 \times (0.067 \times 100 \%)$$

$$Q(1) = 4.88 \text{ L/s (15-minute critical storm)}$$

Pre-Development 1 in 30-Year Rate

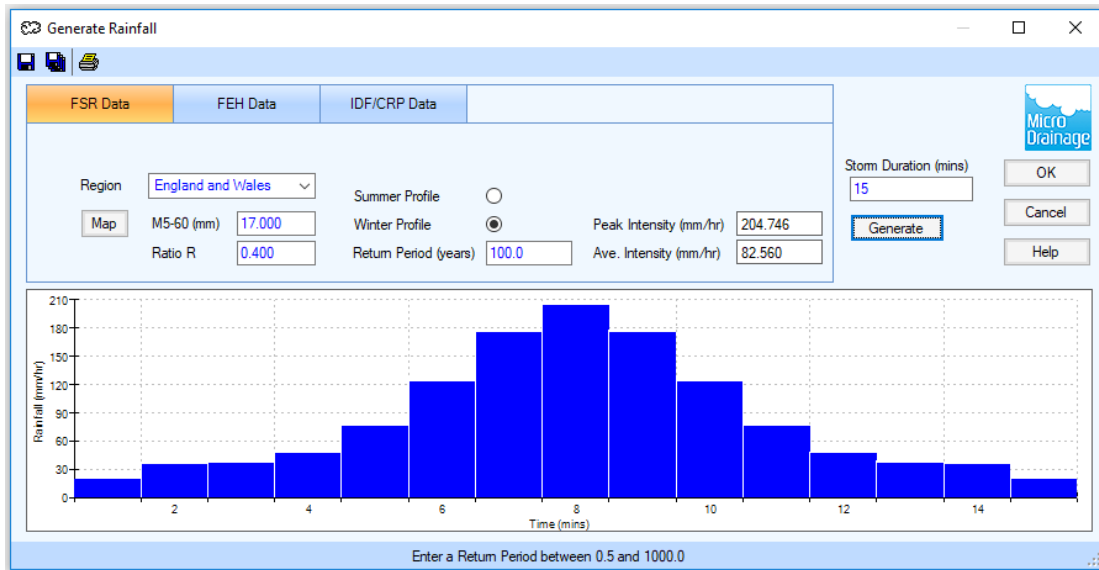


$$Q(30) = 2.78 \times i(30yr) \times (Area \times Impermeable \%)$$

$$Q(30) = 2.78 \times 64.005 \times (0.067 \times 100 \%)$$

$$Q(30) = 11.92 \text{ L/s (15-minute critical storm)}$$

Pre-Development 1 in 100-Year Rate



$$Q(100) = 2.78 \times i(100\text{yr}) \times (\text{Area} \times \text{Impermeable } \%)$$

$$Q(100) = 2.78 \times 82.560 \times (0.067 \times 100 \%)$$

$$Q(100) = 15.38 \text{ L/s (15-minute critical storm)}$$

5. Post Development Restricted Surface Water Run-Off Rate

The surface water from the proposed development is to be restricted by a flow control, in this case a vortex flow control device will be used, to give:

$$\text{Post Development SW Run-Off Rate} = 2.4 \text{ l/s} \quad (50\% \text{ of } 4.88 \text{ l/s})$$

6. Surface Water Attenuation Volumes

The surface water attenuation volumes have been calculated using the above variables and show that the attenuation volumes for the post development impermeable area of 0.067 ha, when restricted to 2.4 l/s.

1 in 100 Year Event + CC (40%) = 23m³

Civic Engineers							Page 1
Carvers Warehouse 77 Dale Street Manchester, M1 2HG							
Date 05/10/2018 14:08 File 1032_Deansgate SC.SRCX							
Designed by eloisem Checked by							
XP Solutions			Source Control 2018.1				
<u>Summary of Results for 100 year Return Period (+40%)</u>							
Half Drain Time : 103 minutes.							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status
15 min Winter	32.487	0.687	0.0	1.7	1.7	15.0	O K
30 min Winter	32.668	0.868	0.0	1.7	1.7	19.0	O K
60 min Winter	32.894	1.094	0.0	1.8	1.8	22.0	O K
120 min Winter	33.440	1.640	0.0	2.2	2.2	22.5	O K
180 min Winter	33.164	1.364	0.0	2.0	2.0	22.2	O K
240 min Winter	32.783	0.983	0.0	1.7	1.7	21.5	O K
360 min Winter	32.683	0.883	0.0	1.7	1.7	19.3	O K
480 min Winter	32.577	0.777	0.0	1.7	1.7	17.0	O K
600 min Winter	32.471	0.671	0.0	1.7	1.7	14.7	O K
720 min Winter	32.355	0.555	0.0	1.7	1.7	12.1	O K
960 min Winter	32.136	0.336	0.0	1.7	1.7	7.3	O K
1440 min Winter	31.941	0.141	0.0	1.5	1.5	3.1	O K
2160 min Winter	31.875	0.075	0.0	1.2	1.2	1.6	O K
2880 min Winter	31.859	0.059	0.0	1.0	1.0	1.3	O K
4320 min Winter	31.846	0.046	0.0	0.7	0.7	1.0	O K
5760 min Winter	31.840	0.040	0.0	0.6	0.6	0.9	O K
7200 min Winter	31.836	0.036	0.0	0.5	0.5	0.8	O K
8640 min Winter	31.833	0.033	0.0	0.4	0.4	0.7	O K
10080 min Winter	31.830	0.030	0.0	0.3	0.3	0.7	O K

Appendix E Drainage Strategy: 1032-01-CIVIC-XX-ZZ-DR-D-001-P01



**Appendix B – Manshire Associates Note on
Drainage Design Strategy**

Project Name: 325 Deansgate, Manchester

Project No: 19030

Report Title: Drainage Outfall

Date: 28/04/20

Note By: Grant McCann

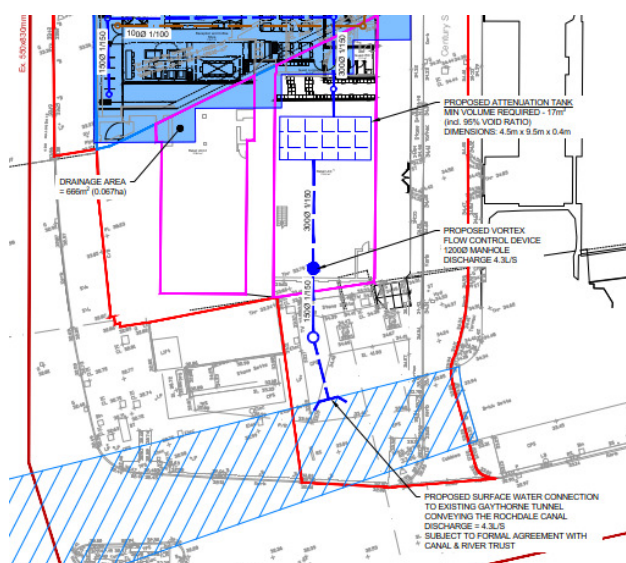
Revision: Rev01

1.0 Introduction

- 1.1 Civic Engineers were appointed by Ask Real Estate Limited, to provide a Flood Risk Assessment and Drainage Strategy to support a Planning Application for the proposed development.
- 1.2 The drainage strategy prepared by Civic restricted flows which were to be discharged to the Rochdale Canal at a rate of 4.3 l/s.
- 1.3 The Canal & River Trust have subsequently refused this proposal i.e. to discharge at a maximum rate of 4.3 l/sec to the Rochdale Canal at RD-052, stating that "it is not acceptable with regards to flood risk". Please refer to Canal & River Trust correspondence appended to this note.
- 1.4 Ask Real Estate have appointed Manhire Associates to consider alternatives, and proposals have been developed that connect to the public sewer network.
- 1.5 A pre development enquiry has been made to United Utilities to check capacity in the wider network, and United Utilities have subsequently confirmed that they would have no objection to a flow of 4.3 l/sec discharging to the public sewer network. Please refer to United Utilities correspondence appended to this note.
- 1.6 This note describes the changes to the drainage strategy described in Civic's Flood Risk Assessment and Drainage Strategy Report submitted as part of the planning application (125804/FO/2019) and supersedes Section 5.5.

2.0 Civic Engineers Drainage Strategy (Refer to Section 5.5 of the Flood Risk Assessment and Drainage Strategy Report)

- 2.1 Based on the originally submitted Drainage Strategy, a traditional system of pipes and manholes would convey flows across the site to an underground tank attenuation system beneath the existing viaducts. It will then discharge from the site, via a manhole with a flow restriction device, to the Rochdale Canal at a rate of 4.3 L/s.
- 2.2 The proposed drainage strategy is enclosed in Appendix E



3.0 Revised Surface Water Drainage Strategy

- 3.1 The revised drainage strategy for the development, involves a traditional system of pipes and manholes which will convey flows across the site to the existing United Utilities 600x1050 Combined Sewer located under Trafford Street to the North of the development. The discharge will be restricted to a rate of 4.3 l/sec via a hydrobrake chamber. An underground offline attenuation tank system will be located beneath the existing viaducts.



Extract from Manhire Associates Technical Layout Drawing # C1060 P1 - Proposed Outfall to United Utility Sewer

Enc. United Utilities email dated 09/04/20
Canal and River Trust email dated 6/02/20

Grant McCann

From: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Sent: 09 April 2020 12:57
To: Grant McCann; Wastewater Developer Services
Subject: RE: 19030: 325 Deansgate - Sewer Capacity Check - 4200030966

Grant,

United Utilities would have no objection to 4.3l/s draining to the public sewer network for surface water from your development if agreement cannot be reached with CRT



Neil O'Brien
Wastewater Pre-Development Engineer
Great Manchester Area
Developer Services & Metering
Customer Services
T: 01925 679410
unitedutilities.com

From: Grant McCann [mailto:GMcCann@ManhireAssociates.co.uk]
Sent: 31 March 2020 15:17
To: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Subject: RE: 19030: 325 Deansgate - Sewer Capacity Check

Dear United Utilities,

Please find attached a pre development enquiry for the development site 325-327 Deansgate, Manchester.

We understand that a previous application was made to discharge foul water to the surrounding sewers which was agreed somewhere around October 2018.

At the time we proposed to discharge the surface water into the adjacent Rochdale Canal at a rate of 4.3 l/sec. However after consulting the Canal & River Trust, they have objected to this discharge stating ***"a maximum discharge rate of 4.3 l/s to the Rochdale Canal at RD-052 is not acceptable with regards to flood risk "***

As we cannot discharge to any infiltration system and the Rochdale Canal is the only water body in the vicinity we have no alternative but to discharge the surface water to the local combined sewerage system at a reduced rate of 4.3 l/sec.

Can you please review the application and confirm this approach will be acceptable.

Kind Regards

Grant McCann
Civil Engineer

Mobile: 07584439476

Business Continuity: We wish everyone well in the coming weeks and months in these very challenging times. Health is our priority while the business continues to focus on delivering engineering services in a collaborative way. We are following government guidelines with staff working remotely where possible and only critical staff based in our offices. The situation remains fluid however, and we appreciate your understanding at this challenging time.
[Read more on our website here.](#)



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Appendix C – EOC proposed drainage strategy

