

Premier House Manchester, UK — Sustainable Drainage Strategy

FOR / Civil and Structural Engineering Services

CLIENT / Property Alliance Group REV / 01 DATE / 3 August 2022

PROJECT NO / L20081

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00	16/06/21	For Planning	SR	LJK
01	03/08/22	For Planning	EG	MM

Revision Notes:

Rev 01 – All updates from previous revision are highlighted in yellow

- Updated drainage plans have been provided in Appendix E

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1 INTRODUCTION AND SCOPE

1.1 Scope of Report

This report has been prepared by BG&E on behalf of Deansgate SOF Alliance Lease Co Limited, a joint venture between Property Alliance Group (PAG) and an affiliate of Starwood Capital (SCG), to support a full planning application for the redevelopment and extension of Premier House, which has been long term vacant, to deliver high quality new workspace with retail/ leisure uses at ground floor level, fronting Deansgate. The site is situated within the jurisdiction of Manchester City Council (MCC).

The National Planning Policy Framework (NPPF) states that an appropriate Flood Risk Assessment (FRA) will be required for all development proposals of 1 hectare or greater in Flood Zone 1 and for any development within Flood Zones 2 or 3. The EA's indicative floodplain map indicates that the site is in Flood Zone 1 and the site is less than 1 hectare.

The MCC Strategic Flood Risk Assessment (SFRA) User Guide (dated May 2010) states in Critical Drainage Areas (CDAs), a detailed FRA is advised for all developments over 0.5 hectares, regardless of which Flood Zone the site falls within. Although the application is within the Conurbation Core CDA, the site is less than 0.5 hectares. Furthermore, the development proposals comprise of refurbishment works only, therefore a full FRA should not be required.

1.2 Introduction

This Sustainable Drainage Strategy summarises flood risk from all sources to the proposed development. Foul water and surface water calculations are then presented, followed by a SuDS assessment and the proposed drainage layouts.

1.3 Reference Documents

This Sustainable Drainage Statement has been carried out in accordance with the National Planning Policy Framework (NPPF), the revised Planning Practice Guidance "Flood Risk and Coastal Change", national Non-Statutory Technical Standards for SuDS, advice and guidance from the Environment Agency (EA) and MCC.

In particular, the following MCC documents have been referred to:

- SuDS Requirements for New Developments (Update 2019);
- The Final MST SFRA (Level 1, Level 2 and the User Guide, dated 2010); and
- local policies DM1, EN08, EN14 and EN17 of the Core Strategy.

2 THE SITE

2.1 Site Location

The site forms part of the wider Renaissance Hotel complex which has long been a longstanding strategic regeneration priority for MCC and is the last remaining undeveloped site within the 1999 City Centre Masterplan.

During the last 20 years, various attempts have been made to bring forward its redevelopment. Most recently, this was in the form of a mixed use scheme in 2008, comprising 4 new buildings, the tallest at 35 storeys and a 2018 Strategic Regeneration Framework by MCC and Urban & Civic. Despite the efforts of well-respected developers, MCC officers, and Sir Howard Bernstein, the lack of activity over the last 20 years illustrates the complexities associated with bringing forward the meaningful regeneration of the site and all previous proposals for wholesale demolition and redevelopment have ultimately proven undeliverable.

The current masterplan proposals have taken a different approach to those that have failed in the past focusing on the part-retention and part-redevelopment of the wider site – one that the Applicants believe is the only way that this site can be realistically brought forward – and ultimately represents a deliverable scheme. Various planning applications will be submitted to MCC for approval pursuant to the overall illustrative masterplan, and the high quality offices and retail/leisure floorspace subject to this particular application are a crucial and fundamental part of ensuring the delivery of this strategically important site.

As well as ensuring deliverability, sustainability is also at the heart of the approach to regenerating the site. The ethos of the Architects Journal "Retro First" initiative strapline "The greenest building is one that already exists" has been adopted. One of the key sustainability benefits of the overall masterplan is the approach to retention and re-use of the existing buildings on site, where appropriate, which will result in a saving in embodied carbon versus a comparable demolition and new build scheme, before the application of other sustainability measures.

Figure 1 below shows the wider masterplan site. The Renaissance complex currently comprises a vacant 15-storey, 203 bedroom hotel building, a multi-storey car park, a restaurant and a dilapidated former office building (Premier House) which has been vacant for a significant number of years. This particular application proposes the redevelopment of Premier House. Separate planning applications have already been submitted for the new 4* Treehouse hotel and the partial demolition of Premier House.

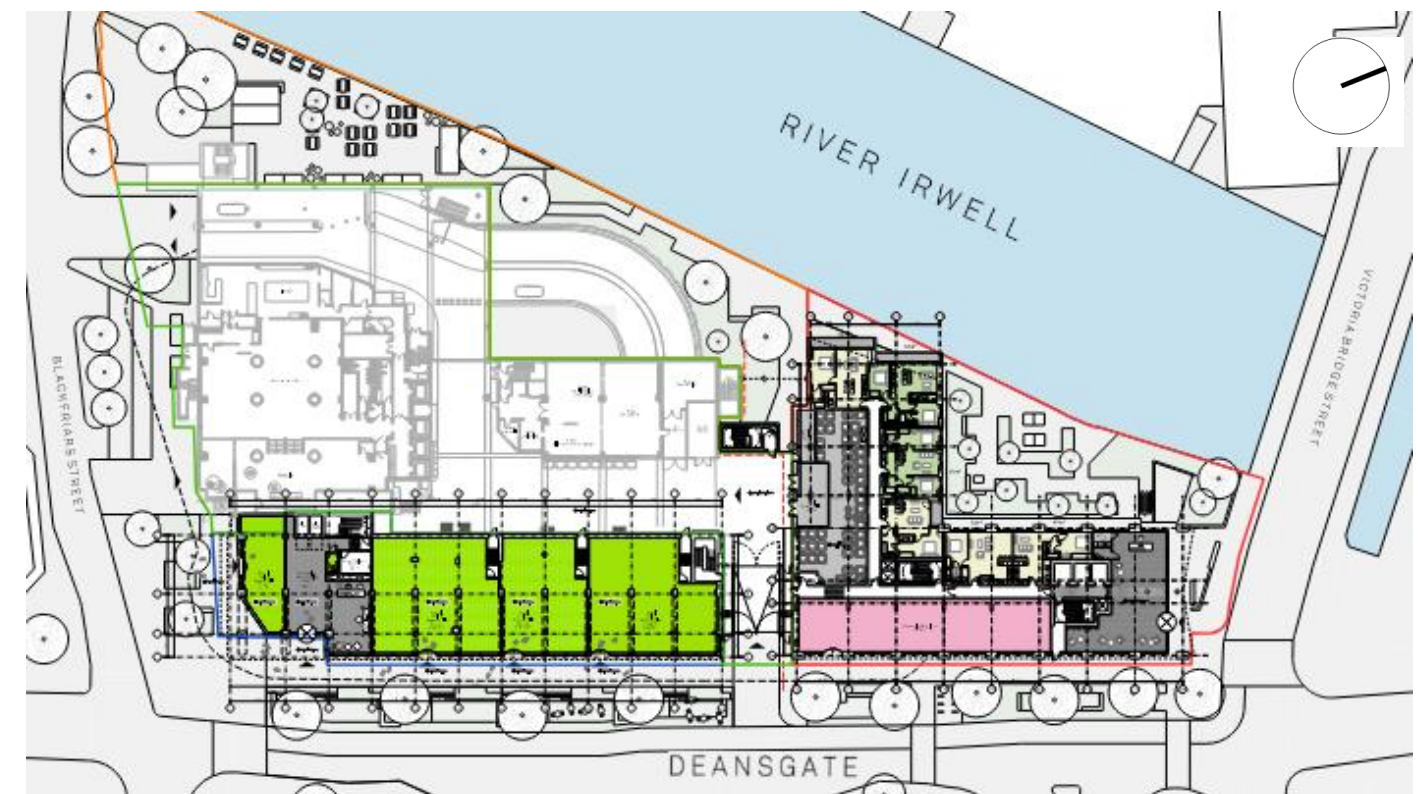


Figure 1 – Masterplan site location

Figure 2 below shows the red line planning application boundary for the Premier House refurbishment and the application site is approximately 0.19 hectares.

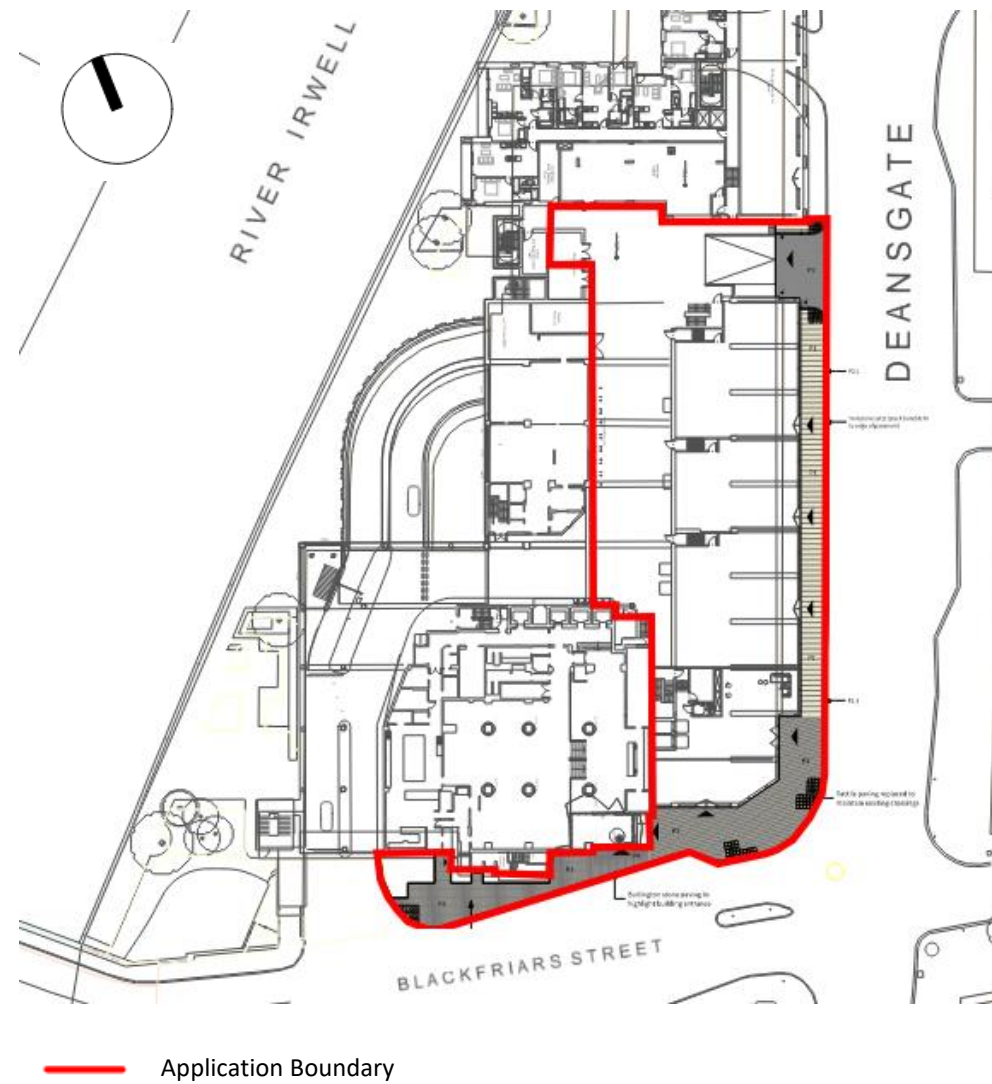


Figure 2 – Application site location

The application site includes modifications to the public footpath along Deansgate and Blackfriars Street. From Deansgate, access can be found to the ground floor level. This is further illustrated in Figure 3 overleaf. The existing building has 3 levels of carpark beneath the ground floor that will be retained. From the River Irwell footpath, direct access to the -3 basement is found.

The extent of the application site is further detailed in the Architectural plans submitted with the planning application.

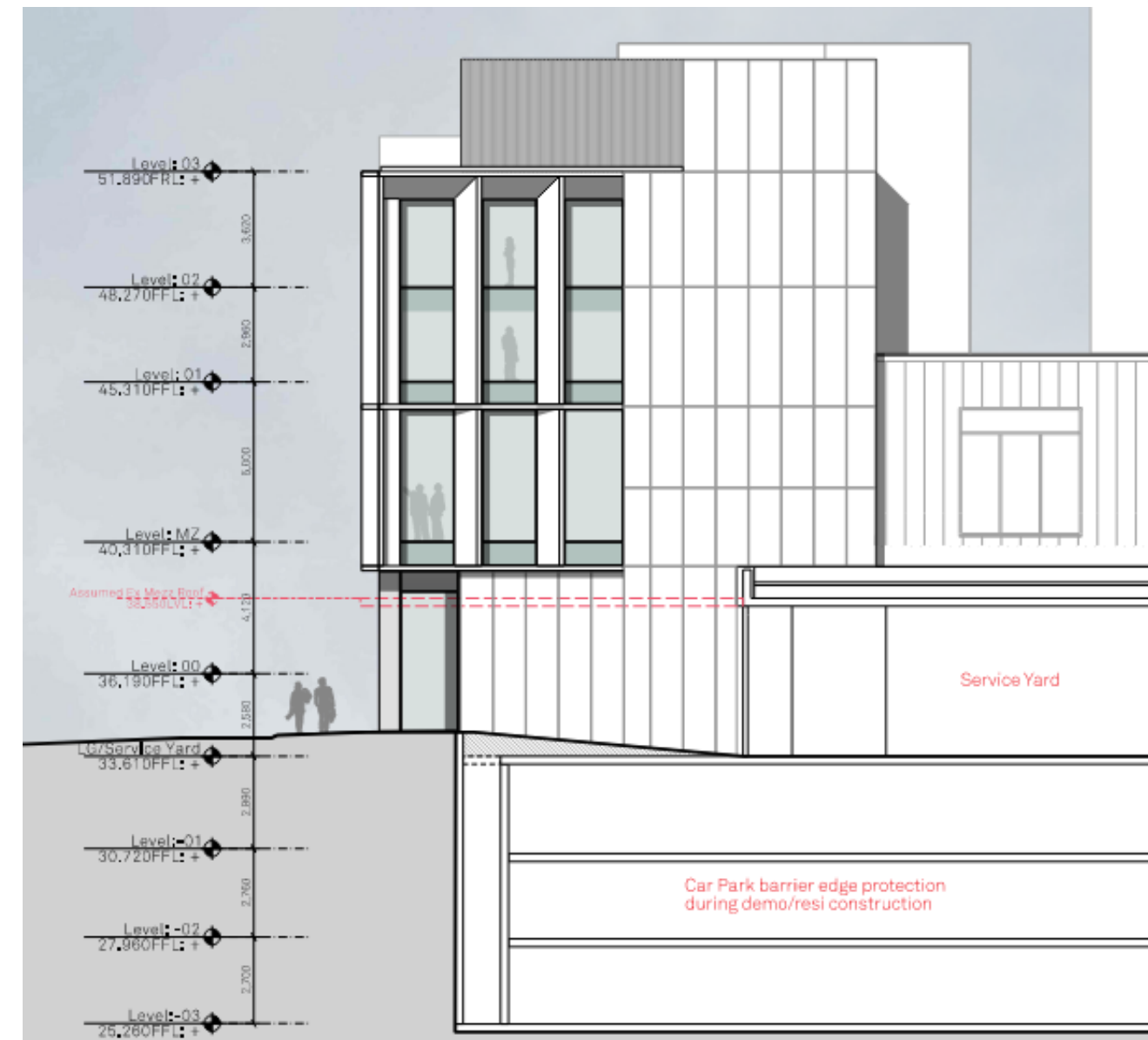


Figure 3 – South Elevation of Premier House

2.2 Surveys and Information

At the time of writing, further CCTV drainage surveys were in progress to confirm the existing drainage arrangements. The current survey information (Figure 4 below and Appendix A) shows that there are separate surface water and foul water drainage networks. Surface water from the site discharges to outfalls along the River Irwell river wall. Foul water from the site runs south along Deansgate and then heads west along Blackfriars Street.

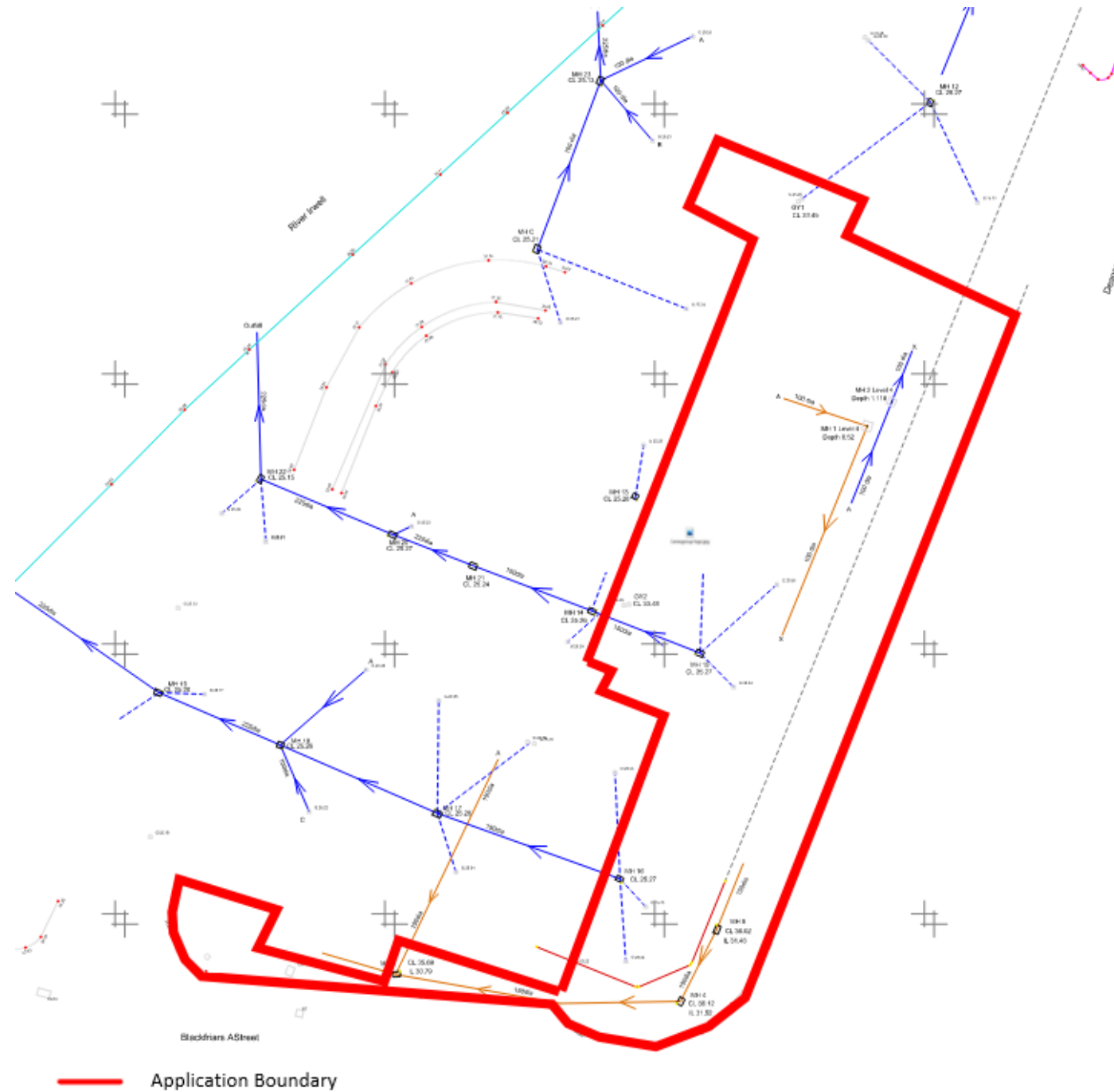


Figure 4 – CCTV survey Extract

The topographical survey in Appendix B shows further manholes/ inspection chambers that will be investigated further as part of the ongoing survey works.

The United Utilities (UU) sewer records (Figure 5 below and Appendix C) shows that there is a public sewer overflow that crosses the site (985 x 1830mm, indicated with a purple line). No modifications are proposed below the basement slab. Therefore, this overflow will be retained. At the time of writing, a CCTV drainage survey was being undertaken to prove the route and condition of the overflow, prior to construction. A CCTV drainage survey will be conducted at completion, to ensure the overflow is fully functional at handover. Furthermore, a build over application will be submitted to UU at the detailed design stages.

The records also show there is an 150mm vitrified clay foul water public sewer at the corner of Deansgate and Blackfriars Street. The additional CCTV drainage survey will confirm if this pipe crosses ownership boundaries, making it a public sewer. If it is found to serve adjacent properties, a build over application will be submitted to UU.

The combined sewer that runs along Deansgate (indicated with a red line) is 2300mm in diameter and UU have confirmed this is a strategic sewer, formed in brick. At the time of writing, the design team have been in discussion with UU to confirm requirements, as the application site is in close proximity to the public sewer. UU correspondence can be found in Appendix D.

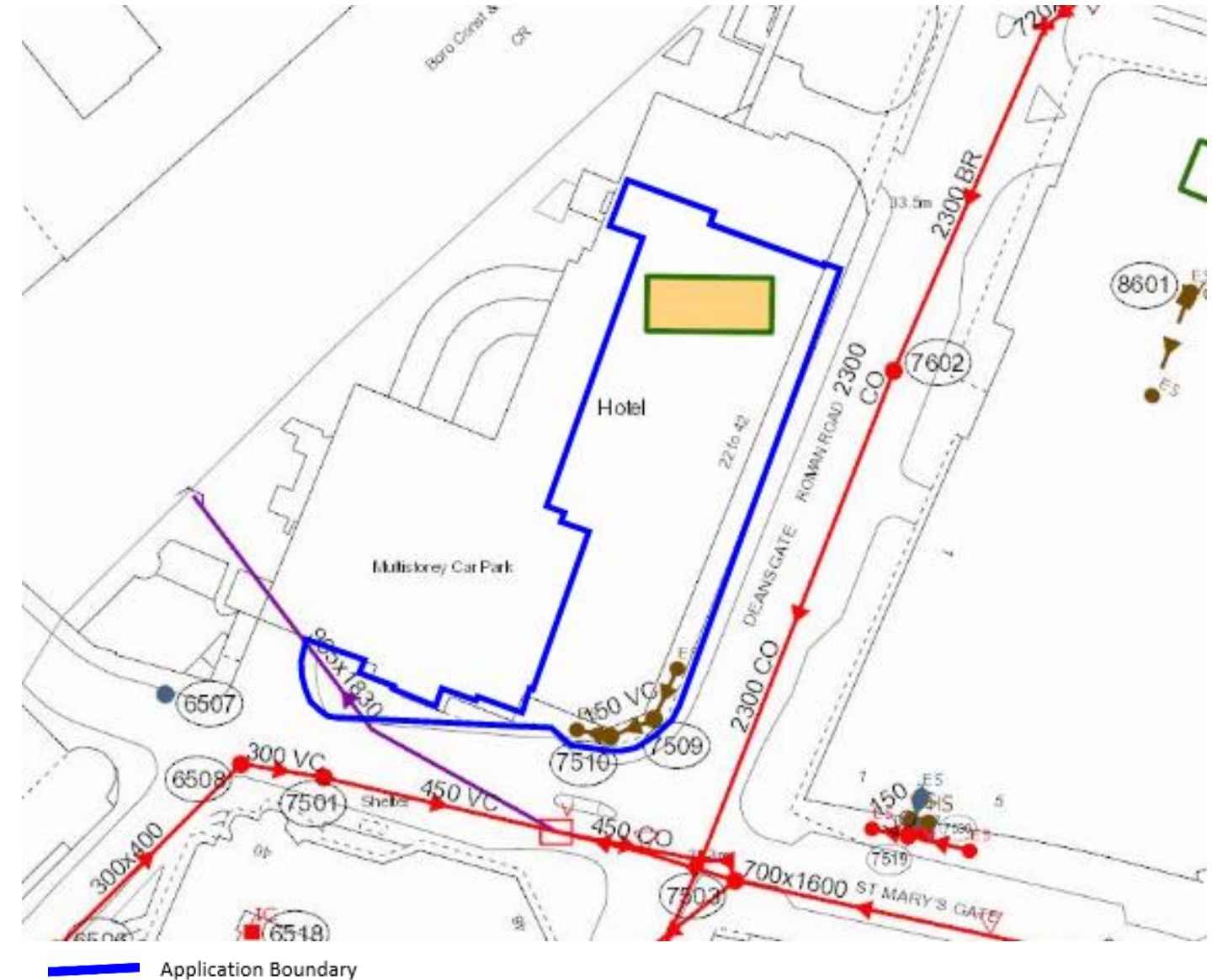


Figure 5 – CCTV United Utilities Public Sewer Records

3 FLOOD RISK

3.1 Main Watercourses

Figure 6 below shows that the application site is situated within Flood Zone 1 and is at low risk of flooding from main rivers and the sea (less than 0.1% annual probability of river flooding). Development in this zone have no restrictions other than ensuring the surface water drainage proposals do not increase the flood risk on site and the surrounding areas.



Figure 6 – EA flood map for planning

3.2 Ordinary Watercourses

The site is adjacent to the River Irwell and this in turn discharges to the Manchester Shipping Canal (MSC). The Lead Local Flood Authority (LLFA) has confirmed that these are classified as Ordinary Watercourses. The MCC SFRA Level 2 maps shows that whilst some of the wider masterplan site is in Flood Zone 2, the application site is not (FL_1.2E, JBA Consulting, 2010).

The application site is not identified in a Canal Breach Hazard Zone or Canal Overtop Hazard Zone (MM_3.2B, JBA consulting, Feb 2011). The site is not in an area with significant hydraulic interactions (HI_5.1, JBA consulting, Mar 2010). The site is not at risk of flooding from the River Irwell or MSC (both in defended and undefended scenarios, FL_1.14A, FL_1.13A, FL_1.12 and FL_1.11, JBA Consulting, 2010).

The MCC SFRA level 2 maps also show fluvial flood depths for the 1 in 100 year event, plus climate change (FL_1.7B, JBA Consulting, Jan 2011). This map shows that the application site is not inundated for this design rainfall event.

3.3 Surface Water and overland flows

The MCC SFRA shows that the site is at very low susceptibility of surface water flooding for both the present and future scenarios. An extract of the surface water future scenario map is shown in Figure 7 below.

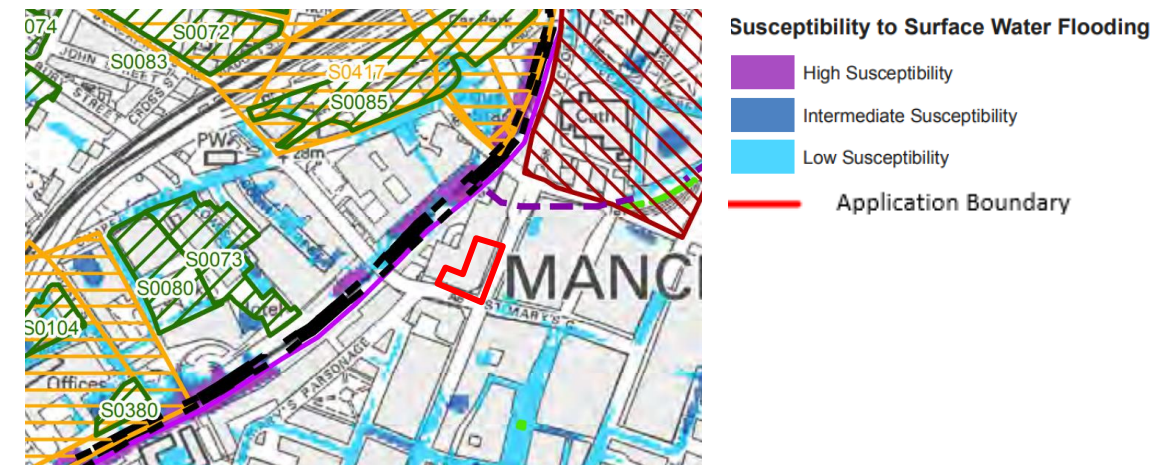


Figure 7 - Susceptibility to Surface Water Flooding - Future Scenario (SS_4.2E)

3.4 Groundwater

The MCC SFRA groundwater flood maps (MM_3.1, JBA Consulting, Feb 2011) does not identify the application site at risk of groundwater flooding, shallow groundwater levels or groundwater rebound. The basement car park will be retained and the waterproofing strategy will prevent the ingress of groundwater. Furthermore, the sandstone geology at the site location has poor porosity properties and reduces the risk of groundwater flooding further.

3.5 Infrastructure failure

The MCC SFRA reservoir screening maps (G W _ 2 . 1, JBA Consulting, Feb 2011) does not identify the application site at risk of reservoir flooding.

As part of the wider masterplan, existing drainage (both private and adopted) will be fully surveyed to ensure its integrity. This includes the combined sewer that runs along Deansgate. A culvert has been identified within the masterplan site and this is located within the boundary of the proposed residential plot occupying the northern area of the Renaissance Complex, which will be subject to a separate planning application later this year. This will be discussed further in the site-wide FRA as this falls outside the current application boundary.

4 SUDS ASSESSMENT

A holistic approach has been taken regarding the sustainability aspects of the application site. The ethos of the Architects Journal “Retro First” initiative strapline “The greenest building is one that already exists” has been adopted, therefore the existing structure and drainage systems will be reused, wherever possible.

In accordance with NPPF PPG Paragraph 080, 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.

The existing building takes up the majority of the application site and infiltration systems such as soakaways require easements that are not achievable within the application boundary. Permeable pavements could be considered for infiltration along the footpaths of Deansgate and Blackfriars Street. However, public sewers run along these footpaths. UU approval will be required if permeable pavements are constructed above their assets (this can make maintenance difficult). Additionally, if the footpaths are offered for adoption, MCC Highways approval will be required for the permeable pavement systems.

In line with the wider design approach, it is considered that the most sustainable option is to re-use the existing surface water drainage network, that discharges directly to the River Irwell. No modifications will take place below the basement slab and therefore installing attenuation systems to greenfield runoff rates would significantly increase to the scope of the project and contradict the design approach.

Relevant SuDS are discussed below in turn:

Rainwater harvesting

The capacity of rainwater harvesting systems to attenuate rainwater depends on the water use within the building. If there is no activity in the building and the harvester is full, no attenuation will be provided during a subsequent storm event. In the worst case scenario the rainwater harvester will provide no attenuation. As this is an office development, a rainwater harvesting system would have limited benefits. Furthermore a holding tank would be required below the basement car park slab and a pump would be required to take this to WCs. Considering the sustainability aspects of the required pump chamber, rainwater harvesting is not considered a sustainable option.

Green/blue roofs

It is proposed to re-use the existing structure and this would not be able to accommodate the additional loads associated with a blue/green roof.

Below ground cellular attenuation

As above, it is proposed to re-use the existing car park basement slab. Therefore below ground cellular attenuation is not deemed feasible.

Direct discharge to watercourse

It is proposed that the existing outfalls to the River Irwell are maintained, as works within the application site compromise of refurbishment works only at the lower basement levels.

Pollution Control in the carparks

The basement carpark will remain as existing and this will provide 281 car parking spaces at each level (riverside, -2 and -1). At the time of writing CCTV drainage surveys were being undertaken to confirm if there are petrol interceptors and other pollution prevention systems. These will be maintained, where found. All opportunities for retrofitting pollution prevention will be considered upon receipt of the CCTV drainage survey.

5 RUNOFF ASSESSMENT

MCC guidance states “for Brownfield site developments, for all sites located within Conurbation Core Critical Drainage Areas, 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 with an aim to reduce to Greenfield runoff rates wherever practicable”.

However, the works consist of refurbishment only at the lower car park levels. In accordance with the aforementioned “Retro First” initiative, it is considered the most sustainable solution to re-use existing drainage, as the structure is being retained. Furthermore, the existing site discharges directly to the River Irwell and this will not affect the surrounding CDA.

Existing Surface Water Run-off

The total site area is approximately 0.21 hectares and all of the site area is impermeable. The existing run-off rate for the 1 in 100 year storm event was calculated using the modified rational method as shown below:

$$Q_{100} = 2.78 \times i \times A$$

Where ‘A’ is the catchment area in ha and ‘i’ is the rainfall intensity in mm/hr as estimated from Micro Drainage software).

$$Q_{100} = 2.78 \times 42.85 \times 0.19 = 22.63 \text{ l/sec}$$

Proposed Surface Water Run-off

The development proposals show that the impermeable areas on site will remain as existing. A 30% allowance has been considered for climate change:

$$Q_{100+30} = 2.78 \times 55.71 \times 0.19 = 29.43 \text{ l/sec}$$

MCC LLFA guidance states “[proposals are] never to exceed the runoff volume from the development site prior to redevelopment”. However, it should be noted that as part of the wider masterplan site, SuDS will be used to reduce surface water runoff rates and volumes. Therefore, the wider masterplan site will not exceed current runoff rates.

Proposed Foul water Run-off

An 150mm and 100mm foul water drain has been identified within the plot boundary that will be re-used. A Pre-development Inquiry has been submitted to UU and this can be found in Appendix D and the extract below.

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

Our preferred point of discharge would be to the 450mm and the 2300mm diameter public combined sewers Blackfriars Street and Deansgate respectively as per your proposal drawing at an unrestricted rate.”

6 CONCLUSIONS

The site forms part of the wider Renaissance Hotel complex which has long been a longstanding strategic regeneration priority for MCC and is the last remaining undeveloped site within the 1999 City Centre Masterplan. The ethos of the Architects Journal “Retro First” initiative has been adopted and the proposals involve refurbishment works only at the lower levels of the development. It is proposed that the existing structure and drainage is retained for re-use.

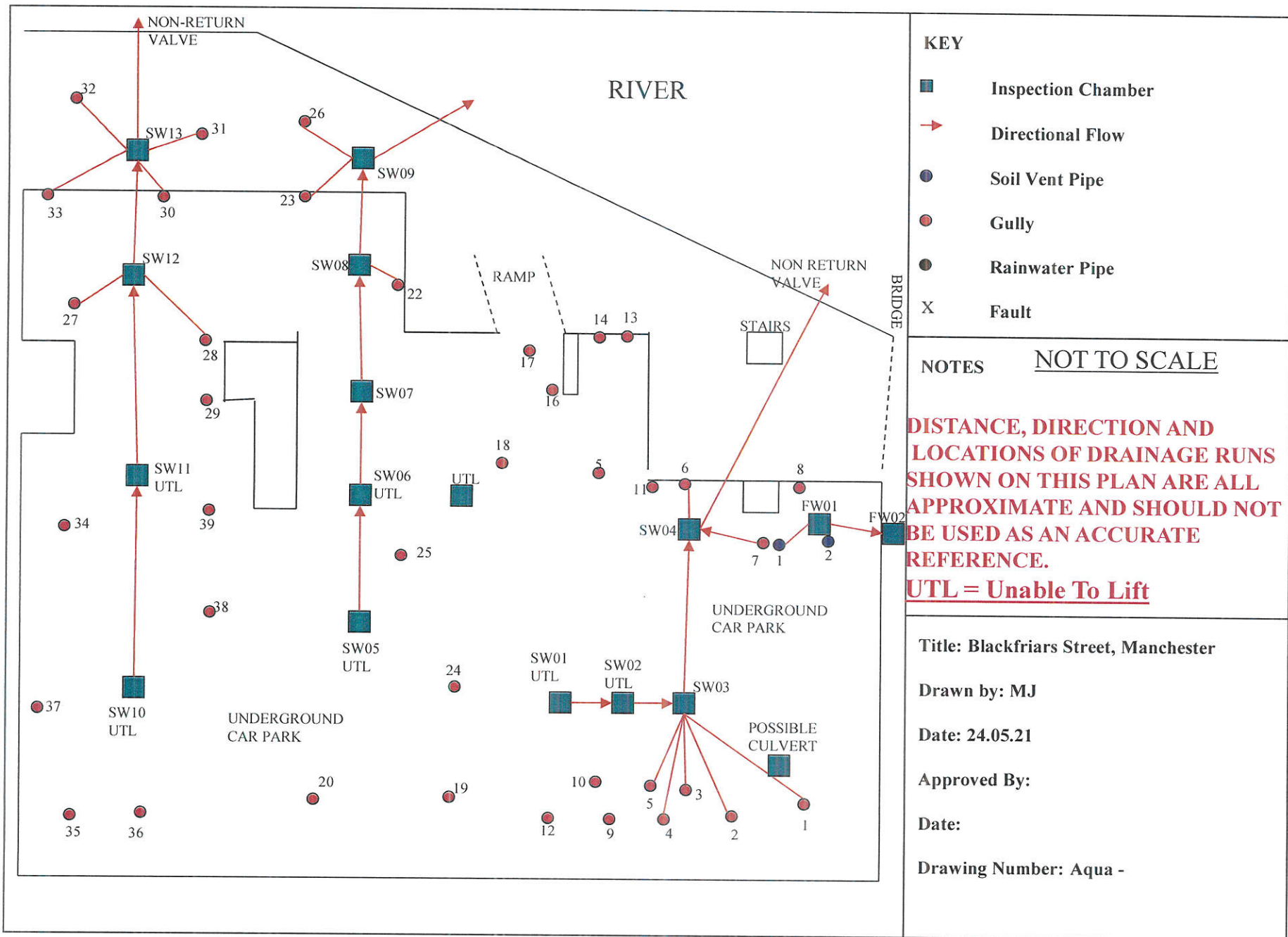
A UU buildover application will be submitted for the public sewer overflow crosses the site. When the additional CCTV drainage survey is completed, discussions will be concluded with UU regarding foul water public sewer within the site boundary and the combined sewer that is close to the site, along Deansgate.

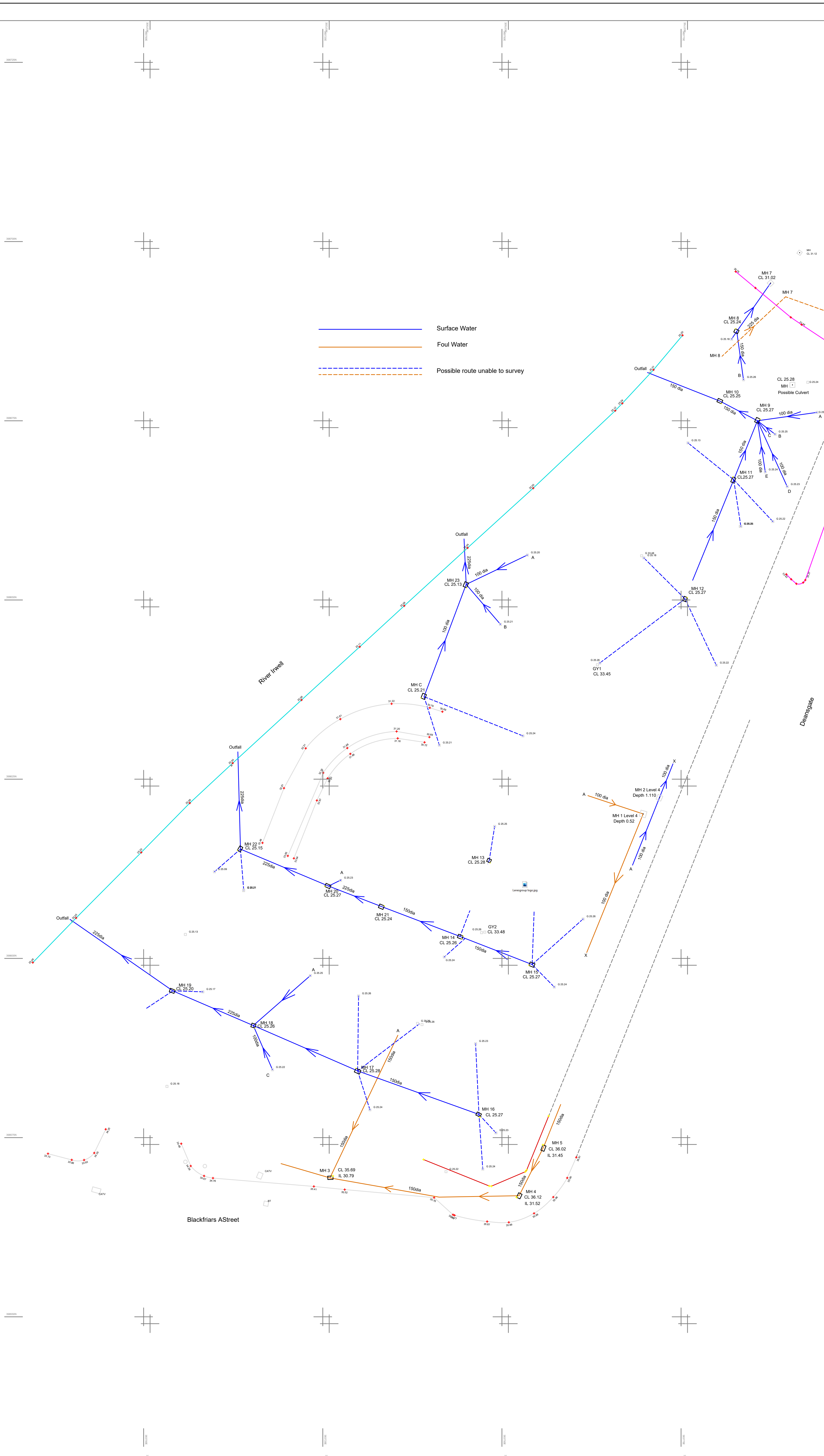
It is proposed that the existing drainage is re-used and flow rates and volumes will remain as existing. Although flow rates and volumes are not reduced within this application boundary, a reduction in the wider masterplan will reduce flood risk at the site location.

This report demonstrates that the flood risk to the site is low and will remain low following the development proposals. Flood risk elsewhere is not increased by the proposed development.

This report has not identified any significant risks that should prevent the re-development of the site. Therefore, the proposed redevelopment has an acceptable flood risk within the terms and requirements of the NPPF.

APPENDIX A –DRAINAGE SURVEY PLANS



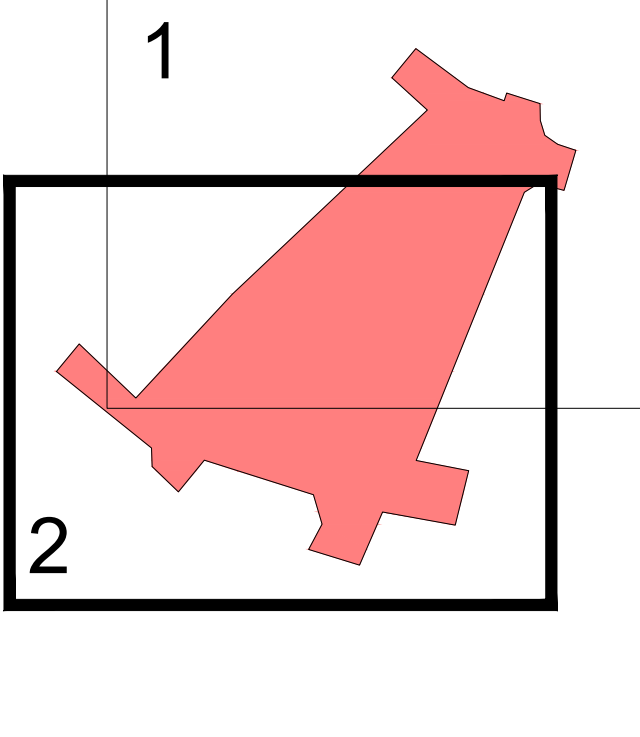


APPENDIX B – TOPOGRAPHICAL SURVEY

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Sheet Index





Rev.	Date	Description
A	22/03/18	River Terrace level added

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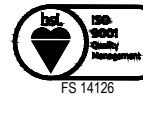
65 Cross Street, Sale, Manchester
M33 7HF. Tel: 0161 905 1205
www.malcolmhughes.co.uk
survey@mhcs.co.uk



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Client

URBAN & CIVIC PLC
WESTMINSTER, ST MARKS COURT
STOCKTON ON TEES, TS17 6QP

Project

SITE AT DEANSGATE
MANCHESTER

Drawing Title

TOPOGRAPHICAL SURVEY

Drawn By DCL 08/03/18

Checked by CT 09/03/18

Drawing No

Survey Date March 2018

Scale A0@1:200scale

51344/2

Revision: A

[illegible]

The map shows a coastal area with a red-shaded region representing the study site. A black rectangle labeled '1' is positioned over the upper part of the red area, and a white rectangle labeled '2' is positioned over the lower part. A north arrow is located in the top right corner, and a scale bar is located in the bottom right corner.



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survey@mh.co.uk

Accreditations








Project

SITE AT DEANSGATE
MANCHESTER

Drawing Title		TOPOGRAPHICAL SURVEY	
Drawing By DCL		Survey Date March 2018	
Checked by CT		Scale A0@1:200scale	
Drawing No 51344/1		Revision A	

APPENDIX C – UU ASSET PLANS

warren chan

40
peter street,
Manchester,
M2 5GP

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: C1405
Our Ref: UUPS-ORD-250037
Date: 19/02/2021**

Dear Sirs

Location: FLAT 101 1 DEANSGATE, MANCHESTER, M3 1AZ

I acknowledge with thanks your request dated 11/02/2021 for information on the location of our services.

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

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

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

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

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

Yours Faithfully,



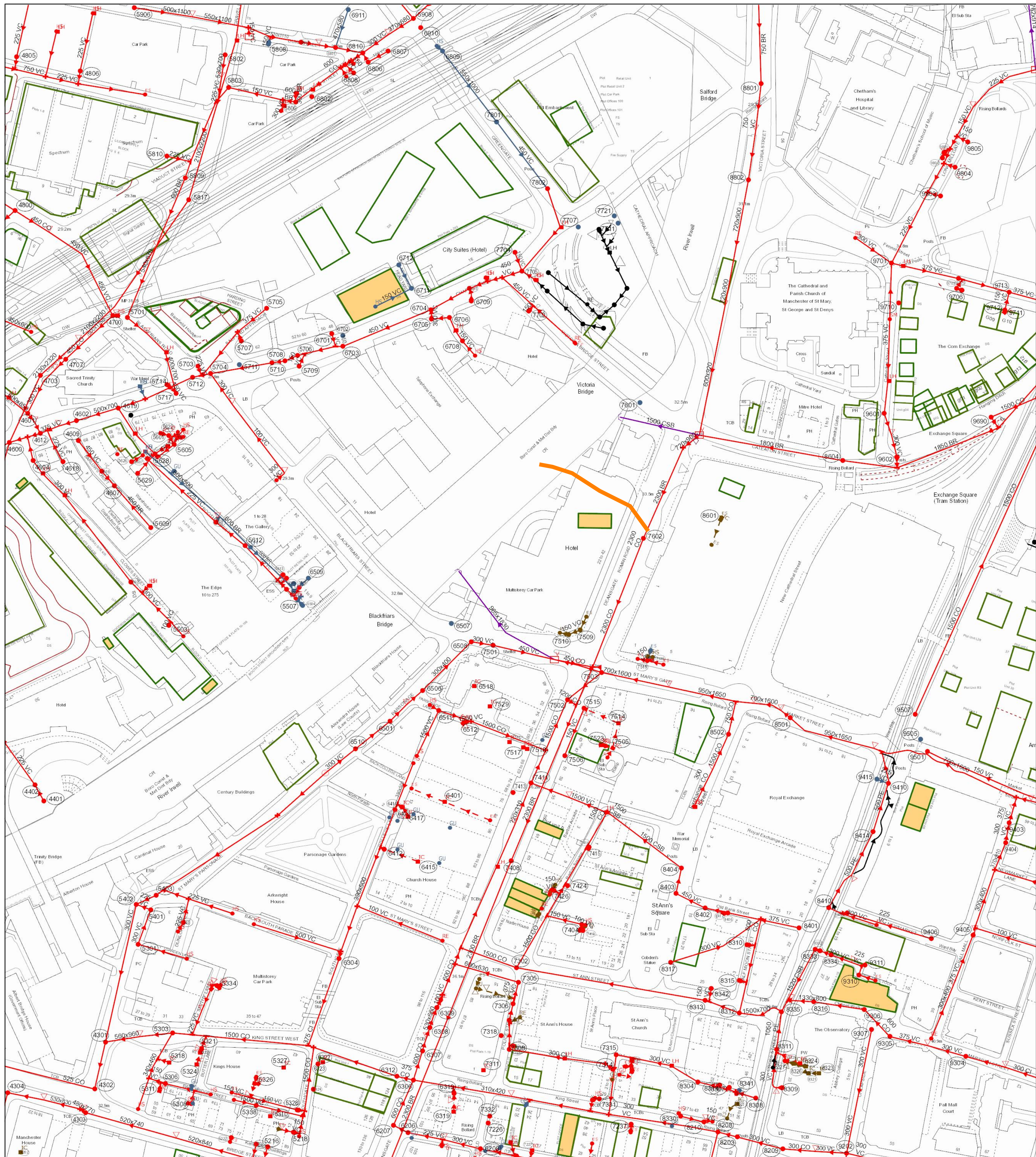
Karen McCormack
Property Searches Manager

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

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

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and effect.
- 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.



Refno	Cover	Func	Invert	Size x	Size y	Shape	Mat	Length	Grad
7334	8801	29.58	CO	22.78	750	VC	2.02999	1 in 18	1 in 18
8306	35.83	CO	31.04	600	VC	16.7035	1 in 18	1 in 18	
8802	30.85	BR	27.75	750	VC	71.9991	1 in 18	1 in 18	
6709	26.74	CO	23.8	150	VC	22.3584	1 in 18	1 in 18	
6911	29.34	BR	27.75	750	VC	13.17195	1 in 18	1 in 18	
8330	34.17	CO	31.1	150	VC	6.334555	1 in 18	1 in 18	
8628	29.27	CO	24.17	375	VC	20.61553	1 in 18	1 in 18	
7704	26.7	CO	24.72	150	VC	32.5629	1 in 18	1 in 18	
6312	35.69	CO	30.65	1500	VC	11.04455	1 in 18	1 in 18	
7454	36.54	CO	30.65	150	VC	48.70318	1 in 18	1 in 18	
5709	27.23	CO	24.28	150	VC	19.7096	1 in 18	1 in 18	
9802	34.02	CO	31.52	150	VC	7.615773	1 in 18	1 in 18	
8309	35.85	CO	31.52	150	VC	2.23008	1 in 18	1 in 18	
7115	35.85	CO	31.52	150	VC	1.09688	1 in 18	1 in 18	
6206	35.66	CO	31.91	600	VC	26.14595	1 in 18	1 in 18	
7510	35.66	CO	31.91	600	VC	8.94272	1 in 18	1 in 18	
6801	29.48	BR	28.22	150	VC	4.836473	1 in 18	1 in 18	
8401	37.17	CO	28.79	375	VC	15.20786	1 in 18	1 in 18	
9609	29.61	BR	28.79	375	VC	40.28788	1 in 18	1 in 18	
4800	29.92	CO	26.98	450	VC	30.4705	1 in 18	1 in 18	
5402	33.55	VC	26.24	300	VC	22.4722	1 in 18	1 in 18	
7411	36.15	VC	25.52	1500	VC	17.87811	1 in 18	1 in 18	
7352	36.54	CO	0	1500	VC	19.69772	1 in 18	1 in 18	
7424	36.54	CO	0	1500	VC	107.2179	1 in 18	1 in 18	
8310	29.92	CO	27.47	450	VC	6.83088	1 in 18	1 in 18	
7326	26.65	CO	22.54	300	VC	12.04159	1 in 18	1 in 18	
6705	26.65	CO	22.54	300	VC	4.474555	1 in 18	1 in 18	
5328	37.8	CO	32.62	450	VC	6.119659	1 in 18	1 in 18	
8207	37.8	CO	32.62	450	VC	2.87207	1 in 18	1 in 18	
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9601	35.16	CO	27.65	375	VC	11.07758	1 in 18	1 in 18	
8410	38.23	CO	28.36	600	VC	21.45093	1 in 18	1 in 18	
8334	38.23	CO	28.36	600	VC	12.64911	1 in 18	1 in 18	
7602	38.23	CO	28.36	600	VC	18.14339	1 in 18	1 in 18	
5707	28.24	CO	0	375	VC	6.37287	1 in 18	1 in 18	
7305	36.55	BR	36.44	600	VC	76.32169	1 in 18	1 in 18	
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9706	35.3	CO	0	150	VC	69.73816	1 in 18	1 in 18	
5222	33.01	CO	27.17	150	VC	5.83092	1 in 18	1 in 18	
4301	33.01	CO	27.17	150	VC	3.16278	1 in 18	1 in 18	
6703	26.85	CO	22.32	450	VC	2.498542	1 in 18	1 in 18	
9713	26.85	CO	22.32	450	VC	26.65333	1 in 18	1 in 18	
8315	35.8	CO	31.34	375	VC	25.58755	1 in 18	1 in 18	
6207	35.8	CO	31.34	375	VC	45.67192	1 in 18	1 in 18	
8207	35.8	CO	31.34	375	VC	4.180113	1 in 18	1 in 18	
7410	35.8	CO	31.34	375	VC	30.93151	1 in 18	1 in 18	
5809	28.93	CO	23.64	600	VC	27.313	1 in 18	1 in 18	
5806	28.97	CO	23.64	600	VC	3.514048	1 in 18	1 in 18	
5812	27.09	CO	22.75	225	VC	8.139123	1 in 18	1 in 18	
9406	36.23	CO	37.53	225	VC	41.23106	1 in 18	1 in 18	
8304	37.03	CO	33.07	300	VC	105.5462	1 in 18	1 in 18	
4401	27.55	CO	22.75	225	VC	7.071068	1 in 18	1 in 18	
4501	27.55	CO	22.75	225	VC	9.219544	1 in 18	1 in 18	
6712	28.97	CO	25.98	150	VC	187.5027	1 in 18	1 in 18	
5206	28.97	CO	25.98	150	VC	17.69181	1 in 18	1 in 18	
5808	30.45	SW	23.59	150	VC	10.01802	1 in 18	1 in 18	
8313	36.83	CO	31.57	1500	VC	14.21267	1 in 18	1 in 18	
5806	28.87	CO	23.86	600	VC	12.52996	1 in 18	1 in 18	
6306	35.83	CO	0	375	VC	54.34251	1 in 18	1 in 18	
7408	36.08	CO	24.1	2300	VC	6.47294	1 in 18	1 in 18	
4700	28.07	CO	24.6	600	VC	56.17143	1 in 18	1 in 18	
6702	26.6	CO	27.12	450	VC	1.642787	1 in 18	1 in 18	
5701	28.18	CO	23.28	600	VC	20.51628	1 in 18	1 in 18	
7822	26.6	CO	27.12	450	VC	7.196777	1 in 18	1 in 18	
6808	28.46	CO	27.2	150	VC	1.805551	1 in 18	1 in 18	
8317	36.69	CO	31.37	150	VC	19.26955	1 in 18	1 in 18	
9406	36.23	CO	37.53	225	VC	46.4043	1 in 18	1 in 18	
9305	39.21	CO	31.37	150	VC	7.071068	1 in 18	1 in 18	
5626	27.59	CO	0	225	VC	46.4043	1 in 18	1 in 18	
5714	27.59	CO	0	225	VC	7.071068	1 in 18	1 in 18	
4618	27.59	CO	0	225	VC	20.24846	1 in 18	1 in 18	
7801	27.03	SW	0	450	VC	32.38027	1 in 18	1 in 18	
5505	28.81	CO	23.18	225	VC	4.539997	1 in 18	1 in 18	
5301	33.38	CO	32.3	300	VC	14.31782	1 in 18	1 in 18	
5806	31.54	CO	0	150	VC	25.91794	1 in 18	1 in 18	
7426	36.74	CO	28.36	450	VC	99.63259	1 in 18	1 in 18	
8209	36.67	CO	33.53	400	VC	17.88584	1 in 18	1 in 18	
5817	28.86	CO	0	2100	VC	57.17316	1 in 18	1 in 18	
8402	36.68	CO	28.51	450	VC	5.747467	1 in 18	1 in 18	
6410	36.68	CO	28.51	450	VC	12.72792	1 in 18	1 in 18	
5601	35.35	CO	26.37	300	VC	10.15804	1 in 18	1 in 18	
5704	27.78	CO	22.94	450	VC	86.17817	1 in 18	1 in 18	
5502	26.94	CO	22.94	450	VC	5.070491	1 in 18	1 in 18	
5507	26.56	SW	25.18	150	VC	2.828427	1 in 18	1 in 18	
6504	26.53	SW	25.18	150	VC	4.101243	1 in 18	1 in 18	
4302	32.79	CO	26.98	625	VC	105.3946	1 in 18	1 in 18	
7308	36.39	CO	30.99	375	VC	16	1 in 18	1 in 18	
5706	27.27	CO	22.27	450	VC	7.071068	1 in 18	1 in 18	
6809	27.61	SW	23.82	550	VC	49.20386	1 in 18	1 in 18	
7333	27.61	SW	23.82	550	VC	15.582611	1 in 18	1 in 18	
8210	26.85	CO	22.52	450	VC	1.413889	1 in 18	1 in 18	
7705	26.85	CO	22.52	450	VC	11.59125	1 in 18	1 in 18	
6506	34.94	CO	28.79	300	VC	38.18377	1 in 18	1 in 18	
6508	34.1	CO	24.8	300	VC	12.16553	1 in 18	1 in 18	
9415	36.02	SW	35.66	225	VC	6.626892	1 in 18	1 in 18	
9414	36.02	CO	32.15	500	VC	27.83223	1 in 18	1 in 18	
7503	36.02	CO	32.15	500	VC	13.80147	1 in 18	1 in 18	
4806	36.02	CO	32.15	500	VC	7.071068	1 in 18	1 in 18	
5509	26.85	CO	24.49	150	VC	5.83092	1 in 18	1 in 18	
8401	37.17	CO	28.79	375	VC	12.86265	1 in 18	1 in 18	
5303	33.64	CO	28.4	1500	VC	18.11077	1 in 18	1 in 18	
4707	27.81	PVC	24.5	450	VC	6.48281	1 in 18	1 in 18	
6307	35.94	CO	30.93	600	VC	7.28011	1 in 18	1 in 18	
4608	27.21	BR	10.62015	0	VC	0	1 in 18	1 in 18	
7502	36.25	CO	28.01	1200	VC	5.83092	1 in 18	1 in 18	
9601	37.17	CO	28.79	375	VC	11.46175	1 in 18	1 in 18	
9310	27.25	CO	23.5	225	VC	11.31291	1 in 18	1 in 18	
6708	26.74	CO	28.2	150	VC	14.82688	1 in 18	1 in 18	
6510	26.72	CO	25.98	150	VC	4.24264	1 in 18	1 in 18	
9908	26.01	CO	24.37	370	VC	16.64332	1 in 18	1 in 18	
7306	36.62	CO	30.52	375	VC	12.36932	1 in 18	1 in 18	
9306	36.22	CO	31.24	600	VC	28.3249	1 in 18	1 in 18	
7307	36.48	CO	30.73	375	VC	2.21544	1 in 18	1 in 18	
4303	33.01	CO	25.94	490	VC	1.414214	1 in 18	1 in 18	
5706	27.2	CO	22.28	450	VC	7.615773	1 in 18	1 in 18	
9202	36.78	CO	34.41	300	VC	17.24546	1 in 18	1 in 18	
6812	30.12	CO	28.78	560	VC	8.97503	1 in 18	1 in 18	
7503	36.02	CO	32.15	500	VC	24.07744	1 in 18	1 in 18	
9701	34.81	CO	28.63	375	VC	37.52708	1 in 18	1 in 18	
6810	28.35	CO	24.35	300	VC	7.539593	1 in 18	1 in 18	
7503	36.02	CO	32.15	500	VC	6.954919	1 in 18	1 in 18	
9403	40.08	CO	28.5	150	VC	7.28011	1 in 18	1 in 18	
5629	40.08	CO	28.5	150	VC	14.39183	1 in 18	1 in 18	
9405	40.08	CO	28.5	150	VC	7.41562	1 in 18	1 in 18	
7314	36.91	CO	32.86	225	VC	2.23008	1 in 18	1 in 18	
9803	34.6	CO	31.44	150	VC	5	1 in 18	1 in 18	
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6319	35.97	CO	30.65	530	VC	7.28011	1 in 18	1 in 18	
7315	36.56	CO	32.64	300	VC	3.759728	1 in 18	1 in 18	
8308	37.5	CO	33.58	300	VC	16.12452	1 in 18	1 in 18	
4604	26.84	CO	21.9	300	VC	16.76305	1 in 18	1 in 18	
5608	28.32	CO	24.31	225	VC	13.34166	1 in 18	1 in 18	
5710	27.35	CO	24.31	225	VC	2.23008	1 in 18	1 in 18	
5218	26.69	CO	22.4	150	VC	34.52535	1 in 18	1 in 18	
6704	26.69	CO	22.4	150	VC	5.699745	1 in 18	1 in 18	
7519	41.84	CO	38.87	300	VC	52.71165	1 in 18	1 in 18	
9304	31.33	CO	38.87	300	VC	5.32454	1 in 18	1 in 18	
4805	31.33	CO	38.87	300	VC	21.84033	1 in 18	1 in 18	
5803	29.88	CO	30.04	225	VC	7.071068	1 in 18	1 in 18	
9602	29.88	CO	30.04	225	VC	55.96387	1 in 18	1 in 18	
5216	29.88	CO	30.04	225	VC	9.2409	1 in 18	1 in 18	
5334	2								

APPENDIX D –STAKEHOLDER CORRESPONDANCE

From: Perry, Graham <Graham.Perry@uuplc.co.uk>
Sent: 04 March 2021 17:05
To: Warren Chan
Cc: Wastewater Developer Services
Subject: Pre Development Enquiry for : Ramada Renaissance Deansgate Manchester M3 1AZ
UU reference Number : 4200037613

Caution: Email originated from outside the SGI Network.

Dear Sirs,

Pre Development Enquiry for: Ramada Renaissance Deansgate Manchester M3 1AZ UU reference Number : 4200037613

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

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

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

Foul Water

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

Our preferred point of discharge would be to the 450mm and the 2300mm diameter public combined sewers Blackfriars Street and Deansgate respectively as per your proposal drawing at an unrestricted rate.

If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

Surface Water

I have noted that your application is for a foul only connection but if you require to dispose of surface water you must adhere to the following advice

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

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

This is outlined as follows, in order of priority:

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

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

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

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

Infiltration

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

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

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

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

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

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

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

Waterbody

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to the adjacent River Irwell

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

Levels

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

Land drainage / Overland flows / track drainage

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

Existing Wastewater Assets Crossing the Site

We have significant assets crossing this site that cannot realistically be diverted. We would ask that you obtain a copy of our asset data records from your provider and plan your development around them ensuring that all legal easements are observed. If any work is required that may impart vibration into the ground we would ask that you contact us for further advice.

Existing Water Assets Crossing the Site

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

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

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

Connection Application

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

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

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

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

Kind regards,

Graham Perry



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

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Sabrina Ram

From: Flood Risk Management <floodriskmanagement@manchester.gov.uk>
Sent: 04 May 2021 17:11
To: Sabrina Ram
Cc: Angela Leckie
Subject: RE: L20081 Manchester Renaissance

Good Afternoon Sabrina,

Hope you've had a nice bank holiday. Thank you for your patience in me getting back to you, apologies we have been quite swamped recently.

I can confirm the River Irwell at your site is classified as an ordinary watercourse.
As such, the LLFA is responsible for risk management for this section of watercourse.

There are certain criteria to trigger consent under the Land Drainage Act, known as Land Drainage Consent. Unlike the EA's FRAP process which can be triggered by proximity to watercourse, Land Drainage Consent is usually triggered by temp. or perm. works affecting channel flow or culverts. This can include discharge connections. We would want to see consideration for existing onsite drainage & protection of the River Irwell regardless of whether the site needs any formal consents: Survey of existing drainage will need to be done to ensure no outfalls are severed by your works. Embedded design and construction management plans should be shown to protect the River Irwell.

I would suggest we have a look at your proposals to see if anything would trigger need for consent.

I would also note that it appears an indicative culvert conduit crosses your site boundary. This would need to be investigated and factored into your design. Please note I have made this interpretation based on the site plan [here](#).

Shall I set up a Teams meeting to talk through your site tomorrow, please advise of a convenient time.

Kind Regards,
Laura

From: Sabrina Ram <Sabrina.Ram@bgeeng.com>
Sent: 04 May 2021 15:39
To: Flood Risk Management <floodriskmanagement@manchester.gov.uk>
Cc: Emily McKiernan <emckiernan@propertyalliancegroup.com>; Will Clarke <wclarke@propertyalliancegroup.com>; Luke Kelly <luke.kelly@bgeeng.com>; Angela Leckie <angela.leckie@manchester.gov.uk>
Subject: RE: L20081 Manchester Renaissance

Dear Laura,

Hope you had a good bank holiday weekend and sorry to pester you again.

Would we be able to confirm who is responsible for the River Irwell, adjacent to our site (M3 2EQ)?

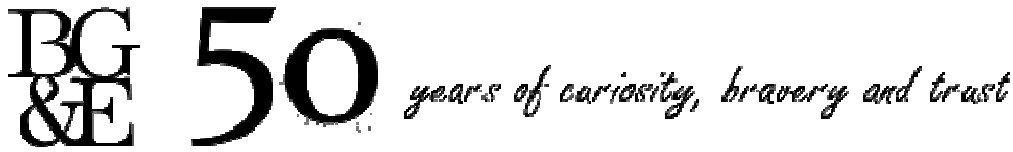
We are also keen to understand the consenting / approvals process for major works in close proximity to the river wall.

Any information you could share would be warmly received.

Kind regards,

t. 07809 760 571

Sabrina Ram—
Senior Civil Engineer



163 Tower Bridge Road, London SE1 3LW
P / +44 203 775 1400 E / Sabrina.Ram@bgeeng.com W / bgeeng.com

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From: Sabrina Ram
Sent: 27 April 2021 14:28
To: Angela Leckie <angela.leckie@manchester.gov.uk>; Flood Risk Management <floodriskmanagement@manchester.gov.uk>
Cc: Emily McKiernan <emckiernan@propertyalliancegroup.com>; Will Clarke <wclarke@propertyalliancegroup.com>; Luke Kelly <luke.kelly@bgeeng.com>
Subject: RE: L20081 Manchester Renaissance

Hi Angela,

Thanks for the email and information.

Hi Laura/ the FRM Team,

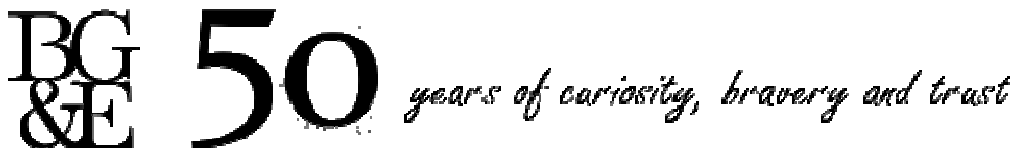
We're working on the civil and structural elements of the proposed development at Manchester Renaissance. This will involve major works in close proximity to the River Irwell. I understand this river is not the responsibility of the EA (see attached email). However, one of our design team members (who is based in Manchester) believes this falls under the responsibility of the EA.

The project is at Stage 2 and we would like to confirm the consenting process, requirements and easements as soon as we can, as this will have an impact on the building layout and also the programme.

Would you able to confirm who is responsible?

I look forward to hearing from you.
Best wishes,

Sabrina Ram—
Senior Civil Engineer



163 Tower Bridge Road, London SE1 3LW
P / +44 203 775 1400 E / Sabrina.Ram@bgeeng.com W / bgeeng.com

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From: Angela Leckie <angela.leckie@manchester.gov.uk>
Sent: 27 April 2021 13:45
To: Sabrina Ram <Sabrina.Ram@bgeeng.com>; Flood Risk Management <floodriskmanagement@manchester.gov.uk>
Cc: Emily McKiernan <emckiernan@propertyalliancegroup.com>; Will Clarke <wclarke@propertyalliancegroup.com>; Luke Kelly <luke.kelly@bgeeng.com>
Subject: Re: L20081 Manchester Renaissance

Hi Sabrina

I have actually been discussing this site with our Flood Risk Team (Laura Peacock) as it ties in with some stuff that we are dealing with outside of the Cathedral. My understanding from that is that MCC not the EA are the responsible authority.

I have copied Laura in so that you can continue this discussion with the FRT direct.

Best Wishes

Angela

There are two outfalls within the plot boundary that discharge to the River Irwell and we will be piling in close proximity to the river banks. Therefore, early discussions are required to understand the approvals process and requirements.

I understand that adjacent to our site, the river is classified as an ordinary watercourse and therefore is not the responsibility of the Environment Agency (see attached email). However, another member of our design team, who is preparing the Flood Risk Assessment, believes the River Irwell in this location is owned and maintained by the Environment Agency.

Would you be able to check with the LLFA to confirm

From: Sabrina Ram <Sabrina.Ram@bgeeng.com>
Sent: 23 April 2021 17:07
To: Angela Leckie <angela.leckie@manchester.gov.uk>
Cc: Emily McKiernan <emckiernan@propertyalliancegroup.com>; Will Clarke <wclarke@propertyalliancegroup.com>; Luke Kelly <luke.kelly@bgeeng.com>
Subject: L20081 Manchester Renaissance

Dear Angela,

Kassim Bahsoon of Property Alliance Group Ltd passed on your details, as we're looking at the civil engineering aspects of the proposed Manchester Renaissance project.

There are two outfalls within the plot boundary that discharge to the River Irwell and we will be piling in close proximity to the river banks. Therefore, early discussions are required to understand the approvals process and requirements.

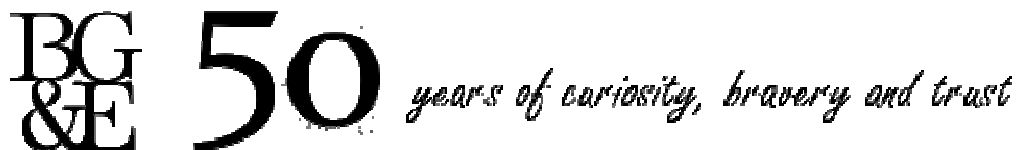
I understand that adjacent to our site, the river is classified as an ordinary watercourse and therefore is not the responsibility of the Environment Agency (see attached email). However, another member of our design team, who is preparing the Flood Risk Assessment, believes the River Irwell in this location is owned and maintained by the Environment Agency.

Would you be able to check with the LLFA to confirm?

Many thanks and should further information be required, please don't hesitate to get in touch.

Kind regards,

Sabrina Ram—
Senior Civil Engineer



163 Tower Bridge Road, London SE1 3LW
P / +44 203 775 1400 E / Sabrina.Ram@bgeeng.com W / bgeeng.com

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Sabrina Ram

From: Flood Risk Management <floodriskmanagement@manchester.gov.uk>
Sent: 24 May 2021 13:17
To: Sabrina Ram; Flood Risk Management
Cc: Luke Kelly; Mark Martin; Frank Fitzpatrick; Emily McKiernan; Will Clarke
Subject: RE: L20081 - Manchester Renaissance

Thank you Sabrina,

I will try to get you some comments for your specs now as this will be more helpful to you.
I have forwarded your scope to the Structures Manager and will send you his response as soon as it lands.

Should you want to discuss anything further just let me know.

Kind Regards,
Laura

From: Sabrina Ram <Sabrina.Ram@bgeeng.com>
Sent: 24 May 2021 12:26
To: Flood Risk Management <floodriskmanagement@manchester.gov.uk>
Cc: Luke Kelly <luke.kelly@bgeeng.com>; Mark Martin <MMartin@propertyalliancegroup.com>; Frank Fitzpatrick <FF@planit-ie.com>; Emily McKiernan <emckiernan@propertyalliancegroup.com>; Will Clarke <wclarke@propertyalliancegroup.com>
Subject: RE: L20081 - Manchester Renaissance

Dear Laura,

Thanks for getting back to us.

Mark (copied into this email) is currently pricing the job and is looking into the methodology on site. If the Structures Manager has any comments on the attached scope, we can incorporate this into the specifications now. Alternatively, Mark can send you these documents once complete.

Best wishes,

Sabrina Ram—
Senior Civil Engineer



50

years of curiosity, bravery and trust

163 Tower Bridge Road, London SE1 3LW
P / +44 203 775 1400 E / Sabrina.Ram@bgeeng.com W / bgeeng.com

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From: Flood Risk Management <floodriskmanagement@manchester.gov.uk>
Sent: 24 May 2021 11:28
To: Sabrina Ram <Sabrina.Ram@bgeeng.com>
Subject: RE: L20081 - Manchester Renaissance

Hi Sabrina,

Hope you're well and that you had a lovely weekend in the rain again,

Thanks for your 3 emails, sorry we have been a bit stretched and would have been unable to get to site last Thurs, but thank you for the invite which is much appreciated.

- I am downloading your file transfer now and will have a look,
- Would you mind sending the proposals for the SI near the river wall to me, I will then send it on to the Structures Manager as soon as it lands? This is just because we are the planning consultee, so it will be easier for me to keep tabs on what has been done for when we come to your Planning Application.

Look forward to hearing from you,

Kind Regards,
Laura

From: Sabrina Ram <Sabrina.Ram@bgeeng.com>

Sent: 21 May 2021 16:23

To: Flood Risk Management <floodriskmanagement@manchester.gov.uk>

Cc: Emily McKiernan <emckiernan@propertyalliancegroup.com>; Mark Martin

<MMartin@propertyalliancegroup.com>; Will Clarke <wclarke@propertyalliancegroup.com>; Stuart Ellis

<sellis@e3p.co.uk>; Luke Kelly <luke.kelly@bgeeng.com>; Laura Peacock <Laura.Peacock@manchester.gov.uk>

Subject: L20081 - Manchester Renaissance

Dear Laura,

Hope you're well.

As briefly discussed in our Teams meeting, we will be digging some small trial pits close the river wall in the coming weeks. Please could we confirm if we need to apply for any permits/ approvals for this? It would be great if we could receive the contact details for the Structures Manager (Neil?). We can then forward our proposals for review.

And a little update; I went to site yesterday and the additional CCTV drainage survey is in progress. I believe the UU overflow at the north end of the site and the culvert may be the same asset, as the culvert route appears to match the UU overflow route.

We'll send over the full CCTV survey report once this is available.

Have a great weekend.

Kind regards,

Sabrina Ram—
Senior Civil Engineer



50

years of curiosity, bravery and trust

163 Tower Bridge Road, London SE1 3LW

P / +44 203 775 1400 E / Sabrina.Ram@bgeeng.com W / bgeeng.com

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APPENDIX E - PROPOSED DRAINAGE PLANS

APPENDIX F – CALCULATIONS