WML CONSULTING

Civil, Structural and Geotechnical Engineers

Flood Risk Assessment

For a site at

Windermere Close, Openshaw

Undertaken on behalf of

Eco-Res LLP

Report No. 8755G/FRA/01

July 2019

WML CONSULTING
Civil, Structural and Geotechnical Engineers

Report Title:	**Windermere Close, Openshaw Flood Risk Assessment**
Report Reference:	**8755G/FRA/01**
Client:	**Eco-Res LLP**
Issue Date:	**July 2019**
Drafted By:	**R Hall**
Authorised By:	**A Leng**

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Revision Status / History

Rev	Date	Issue / Purpose/ Comment	Prepared	Checked	Authorised
01	12/07/2019	Preliminary Issue	RH	KPT	AL

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Executive Summary

Background	WML Consulting have been commissioned by GWPA Architects, on behalf of Eco-Res LLP, to undertake a Flood Risk Assessment (FRA) for a forthcoming planning application in relation to a proposed residential development located at Windermere Close in the district of Openshaw. This report comprises an FRA, as required by the National Planning Policy Framework (NPPF). It has been carried out in accordance with BS 8533:2011 – Assessing and Managing Flood Risk in Development.
Flood Risk	The Environment Agency (EA), United Utilities (UU), and Manchester Council (MC) have been asked to confirm if they have any information regarding past, present or future flooding issues that may affect the site. The EA, UU and MC have all confirmed that there are no known historic issues of flooding to the proposed site. River and coastal flooding - the EA's flood mapping shows the site to be within flood zone 1. On this basis, it is considered that the risk to the development from this form of flooding is low. Groundwater flood risk is considered to be low. Sewer flood risk is currently considered to be low. Watercourse flood risk is considered to be low. Reservoir flood risk is considered to be low. The risk of flooding from other sources is considered to be low. Given the above, the overall risk of flooding to the development is considered to be low.
Surface Water Drainage	From the site investigation information available to date it is considered that the ground conditions at the site are not be suited to the use of soakaways or other infiltration techniques. There is no water course within or adjacent to the site, hence it is proposed that the surface water runoff from the site will be discharged to the existing combined drainage system within Windermere Close. The surface water discharge rates from the site will need to be restricted to a rate of 5l/sec, whilst allowing for the effects of future climate change.

CONTENTS

1.0 INTRODUCTION 1
Appointment 1
Development Proposals 1
Objective 1
2.0 SITE LOCATION AND DESCRIPTION 1
3.0 ASSESSMENT OF FLOOD RISK 2
Correspondence 2
Potential Sources of Flooding 2
Mitigation Measures 2
Finished Floor Levels ..... **Error! Bookmark not defined.**
Sustainable Drainage (SUDS) ..... **Error! Bookmark not defined.**
Future Maintenance ..... **Error! Bookmark not defined.**
4.0 DRAINAGE PROPOSALS 3

APPENDICES

Appendix 01 - Site Location Plan
Appendix 02 - Proposed Site Layout Drawing
- Topo Survey
Appendix 03 - United Utilities Public Sewer Records
Appendix 04 - Environment Agency Correspondence
Appendix 05 - United Utilities Correspondence
Appendix 06 - Manchester Council Correspondence
Appendix 07 - SW Online Flood Mapping
Appendix 08 - Greenfield Runoff Calculation
- SW Storage Estimate
Appendix 09 - Drainage Strategy Plan

1.0 INTRODUCTION

Appointment

1.1 WML Consulting have been commissioned by GWPA Architects, on behalf of Eco-Res LLP, to undertake a Flood Risk Assessment (FRA) for a forthcoming planning application in relation to a proposed residential development located at Windermere Close in the district of Openshaw, Ref Appendix 01.

Development Proposals

1.2 It is understood that the current proposed redevelopment relates to the construction of 8no one and two bedroom houses with external hardstanding for parking and private gardens.

1.3 A copy of the proposed development plan by GWPA, referenced 1914-GWP-01-01-DR-A-(PA)-003, is presented in Appendix 02.

Objective

1.4 This report comprises an FRA, as required by the National Planning Policy Framework (NPPF). It has been carried out in accordance with BS 8533:2011 – Assessing and Managing Flood Risk in Development.

1.5 The NPPF identifies that it is the responsibility of developers to demonstrate:

- whether the development would be affected by current or future flooding from any source
- that the development is safe and where possible reduces flood risk overall
- whether flood risk would be increased elsewhere
- mitigation measures for any identified flooding risks
- that the site can be developed and occupied safely

1.6 The FRA identifies whether there are any flooding or surface water management issues related to the development site that may warrant further consideration, to comply with current Planning Policy and associated Flood Risk Practice Guide.

2.0 SITE LOCATION AND DESCRIPTION

2.1 The site comprises of land off Windermere Close. It is centred on approximate Ordnance survey National Grid Reference 387309E, 397684N with an indicative postcode of M11 2BB.

2.2 A site location plan can be found at Appendix 01. The site is approximately 0.125 hectares, undeveloped and predominantly surfaced with managed grass in use as a public open space.

2.3 The site is grassed, with areas of asphalt and concrete paving around the perimeter. Two semi-mature deciduous trees are located adjacent to the site boundary, one to the north-east and one to the north-western corner.

2.4 Evidence of existing services in the form of two service covers have been identified in the central and south-western sections of the site.

2.5 The site is bounded by: North – Outrington Drive, East – Residential structures off Mill Street, South – Area of car parking with Mill Court beyond, West – Windermere Close with further residential structures beyond.

2.6 Surrounding land is predominantly occupied by residential developments to the south, west and east, with an area of public open space beyond Outrington Drive to the north.

2.7 A topographic survey has been carried out which covers the majority of the site, a copy of this survey can be found at Appendix 02. The site falls gently from Outrington Drive towards the south adjacent to Windermere Close

3.0 ASSESSMENT OF FLOOD RISK

Correspondence

3.1 The Environment Agency (EA), United Utilities (UU), and Manchester Council (MC) have been asked to confirm if they have any information regarding past, present or future flooding issues that may affect the site.

3.2 The EA have confirmed that the site lies within flood zone 1 and have indicated that they have no knowledge of flooding problems in the vicinity of the proposed development site. A copy of the response can be found in appendix 04.

3.3 UU have confirmed that they are unaware of any flood issues to the proposed development. A copy of the response can be found in appendix 05.

3.4 MC have confirmed that they hold no historic records of flooding to the brownfield area. A copy of the response can be found in appendix 06.

Potential Sources of Flooding

3.5 River and coastal flooding - the EA's fluvial flood mapping shows the site to be within Flood Zone 1. Zone 1 indicates an annual exceedance probability (AEP) of not greater than 0.1% (probability 1 in 1000 year) flood risk. On this basis, it is considered that the risk to the development from this form of flooding is low.

3.6 Surface water flooding – a review of the on-line flood mapping shows that part of the proposed development is not subject to surface water flooding. A copy of the surface water flood mapping can be found in Appendix 08 and shows that during low & medium risk scenarios the proposed development is not subject to flooding. The risk of flooding from this source is considered to be low.

3.7 An intrusive site investigation has yet to be undertaken, however the Phase 1 Study suggests that the ground is considered to be mostly impermeable due to the nature of the anticipated cohesive Glacial Till. Given the above, the risk of flooding from groundwater is considered to be low.

3.8 United Utilities have confirmed that they are unaware of any flood issues in the vicinity of the proposed development and therefore the risk of flooding from this source is considered to be low. A copy of the public sewer records can be found in appendix 03.

3.9 Reservoir flooding - from a review of the Ordnance Survey mapping around the site it appears that the site is not in close proximity to any reservoirs, similarly from a review of the EA's on-line flood mapping, it is considered that the risk to the development from this form of flooding is low.

3.10 There is no water course within or adjacent to the site. As there is no recorded historic event of flooding to the site, it is considered the risk of flooding is low.

Mitigation Measures

3.11 From the above, it can be seen that the flood risk posed to the proposed development from all sources of flooding is considered to be low, hence it is considered that significant flood risk mitigation measures are not required as part of the development.

3.12 As the existing site will be developed with new buildings, driveways, etc., rainfall which may previously have resulted in surface water run-off / overland flows will be collected by the new drainage system(s).

It is considered that this will reduce the risk of surface water run-off / overland flows to the proposed development and the surrounding area.

3.13 The proposed dwellings will not have basements. In addition, it is recommended that the finished floor levels of the proposed dwellings should be set at a minimum of 0.15m above adjacent ground levels. This will enable any potential surface water run-off to be conveyed safely across the site, without affecting property, in accordance with the approach promoted within DEFRA's Making Space for Water.

3.14 It is anticipated that the drainage for this development will be adopted by the individual householders.

4.0 DRAINAGE PROPOSALS

4.1 The surface water drainage proposals for the development should incorporate the principles of the NPPF and the SUDS manual.

4.2 The proposed drainage system should be designed in accordance with BS EN 752-4 and the Building Regulations Approved Document H (2010), which indicates the following hierarchy for the disposal of surface water drainage from new development sites:

1. Discharge via infiltration
2. Discharge to watercourse
3. Discharge to sewer

4.3 These options are discussed in further detail below.

4.4 Surface water discharge via infiltration - in view of the relatively impermeable nature of the anticipated cohesive Glacial Till, the site will not be suitable for the use of soakaways / other infiltration techniques to dispose of the surface water run-off, although this should be confirmed by intrusive site investigation prior to detailed design stage.

4.5 Surface water discharge via watercourse – there is no water course within or adjacent to the site, therefore is not achievable to a watercourse.

4.6 Given the SW runoff is not achievable via infiltration or watercourse, it is proposed that surface water will need to discharge to the existing public combined sewer within Windermere Close.

4.7 The site is currently undeveloped and is therefore considered to be a Greenfield site. As such, surface water run-off rates from the developed site will be restricted to Greenfield run-off rates. A Greenfield run-off calculation has been carried out using the ICP SUDS Method in MicroDrainage WinDes software. A summary of the existing Greenfield run-off rates for the site are as follows:

Return Period	Flow (l/s)
1 in 1 year	1.3
1 in 30 year	2.4
1 in 100 year	2.8

A copy of the MicroDrainage calculations can be found appended to this report (Appendix 08).

4.8 The drainage strategy put forward in this document is based on the assumption that surface water discharge is allowed to pass into the existing public combined sewer within Windermere Close at a restricted rate of 5 l/sec, this being the generally accepted practical minimum discharge rate.

4.9 Surface water run-off rates for the developed site should not exceed the rates shown in the table above for the corresponding 1, 30 & 100 year return period storms plus a 40% climate change allowance.

4.10 It is likely that surface water discharge rate attenuation will be required. Given the proposed usage of the development it is considered that below ground attenuation storage is likely to be the preferred method. This could take the form of oversized pipework or a geo-cellular tank(s) or similar located beneath the new external hardstanding areas, with a flow control device(s) to its downstream end.

4.11 A copy of the Quick Storage Estimate calculations can be found appended to this report (Appendix 08). This an attenuation volume of between $23m^3$ to $39m^3$.

4.12 With regards foul drainage for the proposed development, it is anticipated that this will be discharged to the existing public combined sewer within Windermere Close.

4.13 The proposed development is to be drained via separate foul and the surface water drainage systems. These separate systems will combine before leaving the site. A single sewer connection to the existing public combined sewer at UUMH 2600 will be made via a new connection, subject to survey, detailed design and UU approval. Ref Appendix 09.

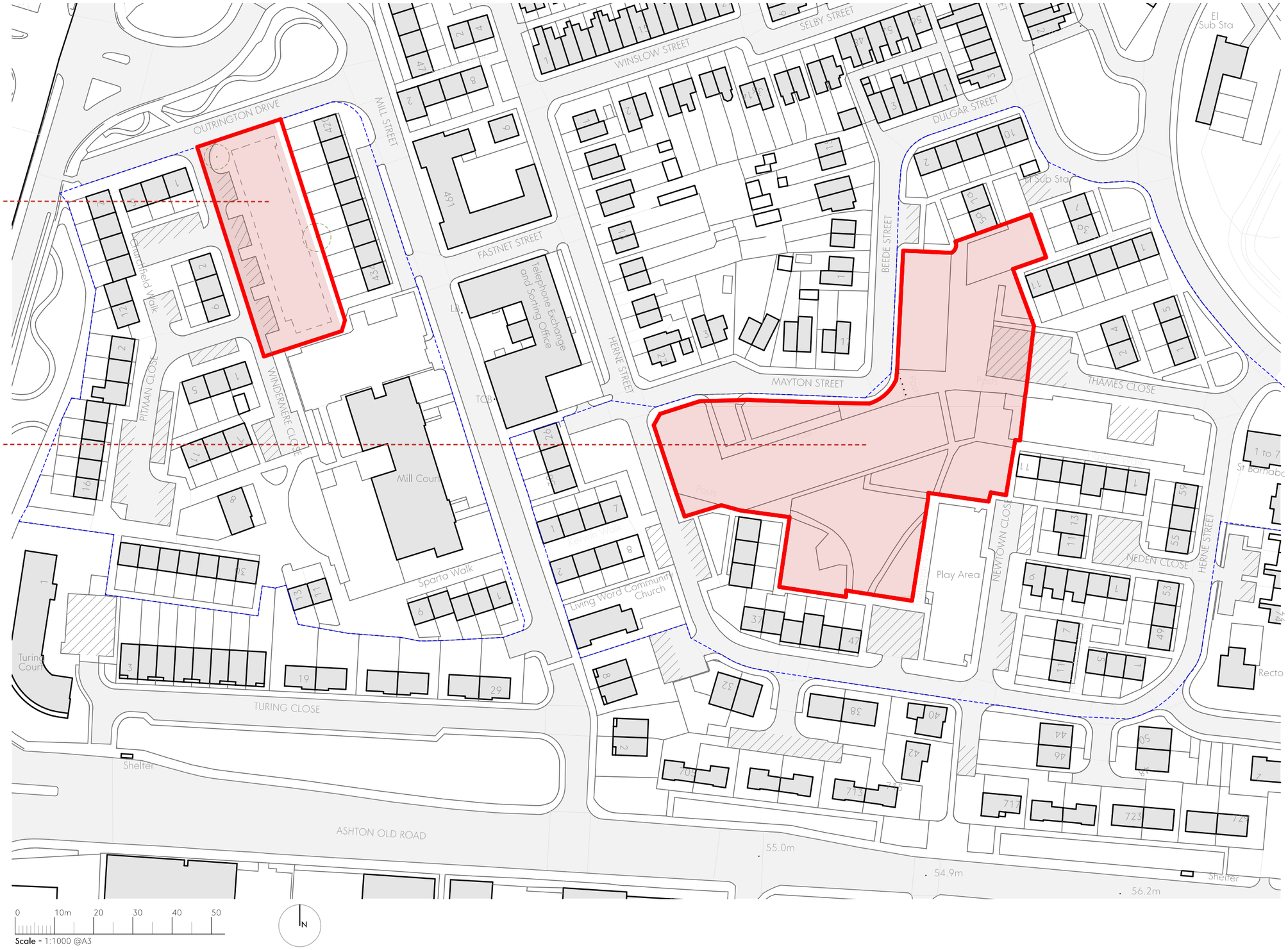
APPENDIX 01

Site Location Plan

1.2 SITE LOCATION PLAN WINDERMERE & MAYTON

Windermere Close
Site Area: 0.2 ha

Mayton Street
Site area: 0.70 ha



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APPENDIX 02

Proposed Site Layout Plan / Topo Survey

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0 1m 5m

Scale - 1:100 @A1

Services Per N D Oliver & Co
Survey Drawing 8734 / 002A

- Telecoms
- Electric
- Noted as 'Unknown' - Presumed to be Gas

Key

+XX.XX - Existing Level

(AR) - Assumed Route
D - Depth
EOT - End of Trace
FW - Foul Water
(SW) - Surface Water
TFR - Taken from Record
UTL - Unable to Lift
UTS - Unable to Survey

Rev	Date	Comment	Dr	Ch

BIMcloud: BIMServer-HP - BIMcloud Basic for ARCHICAD 22/Mayton - (299)1914 GWP-01-SR-A-Manchester-One-P06

GWP Ref (299)1914

Job Title Windermere & Mayton Street

Client one manchester

Site Topographical Survey

Name	1914-GWP-01-01-DR-A-(PA)-0002		
Scale	1:500@A3	Revision	NI
Drawn/Checked	DT / JW	First Issue	Draft
Drawing Status	S - WIP		

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0 10m 20

Scale - 1:500 @A3

	Existing Development	
	2b3p Single Storey Dwelling (61m2) GIA	6
	Total Dwellings	6

- Wall to Street Frontage
- Green Space
- Existing Trees - To be retained where possible, subject to tree survey
- Proposed Trees
- Site Development Boundary
- Site Ownership Boundary
- Existing Levels
- Proposed Levels
- Bike Store
- Washing Line

Services Per N D Oliver & Co Survey Drawing 8734 / 002A

- Telecoms
- Electric
- Noted as 'Unknown' - Presumed to be Gas

Rev	Date	Comment	Dr	Ch

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GWP Job Reference (299)1914

Job Title

Client

one manchester

Proposed Site Plan

Name	1914-GWP-01-01-DR-A-(PA)-0003		
Scale	1:500@A3	Revision	NI
Drawn/Checked	TBA/TBA	First Issue	TBA
Drawing Status	S - WIP		

BIMcloud: BIMServer-HP - BIMcloud Basic for ARCHICAD 22//Weyton - (299)1914-GWP-01-DR-A-Manchester-One-P06

APPENDIX 03

Public Sewer Records

United Utilites Water Limited
Property Searches
Ground Floor Grasmere House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP
DX 715568 Warrington
Telephone 0370 751 0101

Property.searches@uuplc.co.uk

TADW Architects

6 St Petersgate
Stockport

SK1 1HD

Your Ref: 01999
Our Ref: 14/ 1141822
Date: 22/9/2015

FAO:

Dear Sirs

Location: Windermere Close Manchester M11 2AE

I acknowledge with thanks your request dated 21/09/15 for information on the location of our services.

Please find enclosed plans showing the approximate position of our 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 - Wastewater & Water Distribution Plans which are shown overleaf.

I also attach United Utilities' General Condition and Information sheets regarding United Utilities wastewater network and water distribution apparatus, which details contact numbers for additional services (i.e. new supplies, connections, diversions) which we are unable to deal with at this office. You should ensure that the Condition and Information sheets are made available to anyone carrying out any works which may affect our apparatus.

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

If you have any queries regarding this matter please telephone us on 0370 7510101.

Yours Faithfully,

S McManus.

Sue McManus
Operations Manager
Property Searches

UUWaterLimited 2014

United Utilities Water Limited
Registered in England & Wales No. 2366678
Registered Office: Haweswater House,
Lingley Mere Business Park, Lingley Green Avenue,
Great Sankey, Warrington, WA5 3LP

TERMS AND CONDITIONS - WASTERWATER & 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)".

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3. 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.

4. 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.

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9. 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.

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Refno	Cover	Func	Invert	Size.x	Size.y	Shape	Matl	Length	Grad
8507		SW							
8607		CO							
8906	58.31	CO	0	225		CI	VC	30.15	
9401	52.14	CO	49.35	1050		CI	BR	31.95	
9402		CO	0	760	610	EG	BR	26.13	
9403		CO							
9404		SW							
9503	52.59	CO	48.06	450		CI	CO	4.11	103
9504	53.89	CO	50.89	1050		CI	BR	32.65	21
9505	52.42	CO	45.38	600		CI	VC	32.41	108
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9510	53.28	CO							
9511		SW							
9512		SW							
9513		SW	0			CI		15.01	
9601	54.17	CO							
9602		SW							
9603		SW							
9604		SW							
9605		SW							
9606		FO							
9607		FO							
9608	53.91	CO							
9609		CO							
9610	53.61	CO							
9611		FO							
9612	53.87	CO							
9613		SW		225		CI	UN	44.96	
9614		FO							
9615		CO							
9701		SW							
9702		SW							
9703	54.79	CO							
9918	57.96	CO	0	300		CI	VC	53.34	
0501	54.25	CO	46.13	600		CI	CO	74.33	206
0505	54.91	CO							
0506	54.55	CO							
0507	53.67	CO							
0508	53.85	CO	0	450		CI	VC	16.04	
0509		SW	0			CI		40.72	
0601		SW							
0602	54.98	CO							
0609		SW	0			CI		8.03	
0701	55.92	CO							
0702	56.04	CO	54.26	150		CI	VC	5.39	
0703	56.24	CO	53.89	225		CI	VC	18.25	73
0707	55.33	CO							
0800	57.06	CO	0	450		CI	VC	31.86	
0803	57.16	CO	52.48	450		CI	VC	37.44	208
0804	57.03	CO							
0815	56.31	CO							
0817		CO	0	225		CI	VC	24.04	
0900	58.87	CO	56.65	300		CI	VC	72.35	
1401		CO	0	300		CI	BR	48.77	
1500	54.6	CO	51.99	300		CI	VC	19.32	52
1502	54.51	CO							
1505	54.87	CO	51.19	450	675	EG	BR	5	
1506	54.94	CO							
1512	54.48	CO							
1513	54.32	CO							
1514	54.21	CO							
1600	55.6	CO	50.55	300		CI	VC	70.5	95
1601	55.13	CO	52.73	300		CI	VC	77.18	107
1603	55.15	CO							
1604	55.05	CO							
1701	56.18	CO	53.13	375		CI	VC	11.31	
1702	56.36	CO	0	450		CI	VC	33.42	
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1704	56.1	CO							
1705	55.71	CO							
1706	55.97	CO	51.57	300		CI	VC	72.21	71
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2400	54.95	CO	51.72	375		CI	VC	39.11	
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2600	56.23	CO	54.37	225		CI	VC	39.32	68
2601	55.98	CO							
2603	55.88	CO							
2605	55.57	CO	52.57	300		CI	VC	14.76	246
2606	55.68	CO	52.04	450		CI	VC	52.77	129
2610	55.44	CO	53.34	225		CI	VC	35.51	47
2700	56.57	CO	53.96	300		CI	VC	44.27	114
2701	56.32	CO							
2702	55.97	CO	52.99	300		CI	VC	4.12	
2705		CO							
2800	57.86	CO							
2803	57.8	CO							
2804	57.61	CO	0	300		CI	VC	32.28	
2805	57.34	CO	53.68	300		CI	VC	72.51	
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2904	58.11	CO							
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3406	55.32	CO	47.53	600		CI	VC	125.48	
3500	55.95	CO	52.35	375		CI	VC	19.31	176
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3704	57.26	CO							
3705	56.73	CO							
3706	57.11	CO							
3707	56.55	CO	54.01	375		CI	VC	115.44	2
3710		CO	0	600		CI	VC	4.54	
3714		CO							
3722	1500	CO							
3723	1200	CO							
3801	57.4	CO							
3802		CO							
3803	57.54	CO							
4409	55.64	CO	48.14	450		CI	VC	40.05	138
4500	55.67	CO	51.52	450		CI	VC	30.59	
4501	56.13	CO	53.28	225		CI	VC	55.58	116
4502	56.11	CO	50.96	450		CI	VC	18.03	78
4600	56.63	CO							
4601	56.09	CO							
4602	56.43	CO	52.68	300		CI	VC	37.48	250
4603	56.83	CO	53.09	300		CI	VC	42.05	81
4700	57.95	CO							
4701	57.95	CO	55.53	300		CI	VC	10.44	15
4702	57.58	CO	54.68	300		CI	VC	35.74	199
4703	58.27	CO							
4704	58.02	CO							
4705	57.96	CO	56.69	225		CI	VC	69.26	60
4706	58.17	CO	57.03	225		CI	VC	22.36	66
4708	57.95	CO	55.53	300		CI	VC	70.23	
4709	57.45	CO	53.95	300		CI	VC	35.74	83
4801	57.65	CO	54.86	300		CI	VC	43.03	
4802	57.55	CO	46.79	1200		CI	BR	84.19	63
4803	58.47	CO							

Refno	Cover	Func	Invert	Size.x	Size.y	Shape	Matl	Length	Grad
5400	55.39	CO							
5401	56.28	CO	0	1900		CI	CO	24	
5402	56.43	CO	53.48	300		CI	VC	71.34	46
5403	55.32	SW	51.25	1200		CI	BR	33.62	134
5404	55	CO							
5406	54.69	CO	53.01	600		CI	PE	28.18	7
5433	53.32	CO							
5501	56.02	CO	54.78	225		CI	VC	27.46	50
5502	55.92	CO	52.27	225		CI	VC	33.06	174
5505	55.32	CO							
5506	55.47	CO							
5507	55.67	CO	50.48	650		CI	CO	6.08	
5508	57.07	CO							
5509	56.59	CO	52.84	675		CI	CO	26.02	34
5510	56.78	CO							
5511	56.78	SW	51.33	1425		CI	BR	5.1	510
5512	56.23	SW	51.31	1425		CI	CO	14.14	236
5513	55.93	CO							
5514	55.69	CO	49.84	600		CI	CO	22.2	74
5515		CO							
5517		CO							
5518	55.85	CO	50.48	525		CI	CO	58.01	132
5600	57.2	CO	54.9	300		CI	VC	54.45	30
5601	57.52	CO	55.54	300		CI	VC	21.63	70
5603	56.15	CO	53.89	525		CI	CI	26	15
5604	56.18	SW							
5605	56.5	SW	52.65	1200		CI	BR	132.31	100
5606		SW	0	750		CI	BR	25.5	
5607	56.18	CO	54.79	300		CI	VC	58.05	142
5700	68.39	CO	55.51	375		CI	VC	21.19	424
5701	58.58	CO	56.48	225		CI	VC	23.77	
5702	58.71	CO	56.96	225		CI	VC	32.9	43
5705	58.24	CO							
5706	58.73	CO							
5707	58.14	CO							
5708	58.2	CO	55.45	375		CI	VC	44.61	165
5709	58.62	CO	56.19	225		CI	VC	19.7	
5710	58.7	CO	56.02	225		CI	VC	36.4	46
5711	58.18	CO	56.73	225		CI	VC	20.62	
5712	58	CO							
5713	57.85	SW	53.94	750		CI	BR	51.62	
5714	57.87	CO							
5716	57.83	CO							
5721		CO							
5801	60.36	CO	0	300		CI	VC	33.84	
5802	58.66	CO	0	300		CI	VC	33.24	
5803	59	CO							
5804	58.61	CO							
5805	58.58	CO	43.7	1350		CI	BR	3.16	
5806	58.49	CO	0	450		CI	BR	5.39	
5808	58.59	CO	56.92	375		CI	VC	45.54	32
5809	58.79	CO	57.6	225		CI	VC	37.95	59
6408		CO							
6500	57.08	CO							
6501	57.66	CO	53.87	675		CI	CO	20	38
6600	58.2	SW							
6601	57.3	SW	55	300		CI	VC	26.08	87
6602	57.4	SW							
6603	57.43	CO							
6700	60.14	CO	57.16	300		CI	VC	22.02	44
6701	59.46	CO							
6802	61.18	SW							
6805	60.38	CO							
1001	58.82	CO							
2002	58.45	CO	0	300		CI	VC	80.7	
9508		CO							
9706		CO							
9924		CO	0	300		CI	VC	29.43	
8026		CO							
8027		CO							
8028		CO							
8029		CO							
0503		CO							
0905		CO							
1509		CO	0	380		CI	VC	59.21	
1605		CO							
1608		SW							
2405		CO							
2604		CO							
2703		CO	0	300		CI	VC	24.7	
2704		SW	0					64.31	
2806		CO							
2807		CO	55.6	375		CI	VC	31.63	12
2906		CO							
3402		CO							
3504		CO							
3507		CO							
3508		CO							
3605		CO							
3608		CO							
3609		CO							
3709		CO	0	2600		CI	BR	91.78	
3711		CO	52.59	375		CI	VC	53.72	153
3716		CO							
3718		CO							
3720		CO							
4405		CO	0	2625		CI	BR	77.1	
4414		CO	0	450		CI	VC	10.05	
4503		CO							
4505		CO							
4506		CO							
4507		CO							
4806		CO							
4901		CO	0	450		CI	BR	117.17	
5411		CO	0	300		CI	VC	24.19	
5414		SW	51	300		CI	BR	34.54	133
5503		CO							
5504		SW							
5519		CO							
5602		SW							
5613		CO							
5703		CO							
5718		CO							
5719		CO	0	225		CI	VC	15.23	
5724		CO	0	300		CI	VC	36.06	
5725		CO	0	225		CI	VC	14.32	
5727		CO							
5811		CO	0	675		CI	VC	8.25	
5812		CO	0	375		CI	VC	73.68	
5813		CO							
5814		CO							
5815		CO	0	300		CI	VC	19.34	
5816		CO							
6606		CO							
6809		CO	0	375		CI	VC	30.61	
8501		CO							
8502		CO							
8506		CO	45.08	600		CI	VC	64.28	
8033		CO							
8034		CO							
8035		CO							
8036		CO							
1404		CO							
1507		CO							
1510		CO							
1602		CO							
1700		CO							
1707		CO							
1708		CO							
1808		CO							
2402		CO							
2406		CO							
2608		CO							
2613		CO							
2801		CO							
2802		CO							
2901		CO	53.45	375		CI	VC	7.28	182
3401		CO							
3403		CO							

WASTE WATER SYMBOLOGY

Foul Surface Combined Overflow

Manhole
Manhole, Side Entry
MainSewer, Public
MainSewer, Private
MainSewer, S104
Rising Main, Public
Rising Main, Private
Rising Main, S104
Highway Drain, Private

Foul Surface Combined

WW Site Termination
Air Valve
Cascade
Non Return Valve
Extent of Survey
Flow Meter
Gulley
Hatch Box
Head of System
Hydrobrake / Vortex
Inlet
Inspection Chamber
Bifurcation
Catchpit
Contaminated Surface Water
WW Pumping Station
Sludge Pumping Station
Sewer Overflow
TJunction/Saddle
LampHole
OilInterceptor
PenStock
Pump
RoddingEye
Soakaway
Summit
Valve
Valve Chamber
Washout Chamber
DropShaft
WW Treatment Works
Septic Tank
Vent Column
Network Storage Tank
Orifice Plate
Vortex Chamber
Penstock Chamber
Blind Manhole

Foul Surface Combined Overflow

Screen Chamber
Discharge Point
Outfall

Sludge Main, Public
Sludge Main, Private
Sludge Main, S104

ABANDONED PIPE

MainSewer
Rising Main
Highway Drain
Sludge Main

Control Kiosk
Unspecified

LEGEND

MANHOLE FUNCTION

FO Foul
SW Surface Water
CO Combined
OV Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement	DI	Ductile Iron
BR	Brick	PVC	Polyvinyl Chloride
PE	Polyethylene	CI	Cast Iron
RP	Reinforced Plastic Matrix	SI	Spun Iron
CO	Concrete	ST	Steel
CSB	Concrete Segment Bolted	VC	Vitrified Clay
CSU	Concrete Segment Unbolted	PP	Polypropylene
CC	Concrete Box Culverted	PF	Pitch Fibre
PSC	Plastic/Steel Composite	MAC	Masonry, Coursed
GRC	Glass Reinforced Concrete	MAR	Masonry, Random
GRP	Glass Reinforced Plastic	U	Unspecified

The position of underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available.
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OS Sheet No:

Scale: 1: 1250 Date: 22/09/2015

398 Nodes

Sheet 1 of 2

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SEWER RECORDS

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OS Sheet No:

Scale: 1: 1250 Date: 22/09/2015

Refno	Cover	Func	Invert	Size.x	Size.y	Shape	Matl	Length	Grad
3601		CO							
3602		CO							
3610		CO							
3713		CO							
3800		CO							
4504		CO							
4707		CO							
4800		CO	0	300		CI	VC	68.63	
4805		CO							
5405		CO							
5407		CO							
5413		CO							
5516		CO							
5520		CO							
5704		CO							
5717		CO							
5720		CO							
5722		CO							
5723		SW							
5807		CO							
5810		CO	0	1350		CI	BR	53.76	
5817		CO							
6402		CO							
6605		CO							
6804		CO							
6811		CO							
6814		CO	0	375		CI	VC	9.85	
8601	53.57	CO							
8704		CO							
8801		CO							
9501	53.98	CO							
9502	53.51	CO							
9506		CO							
9507		CO							
9601		CO							
9602	54.16	CO							
9603	54.09	CO							
9604	53.94	CO							
9605		CO							
9606		CO							
9607	54.19	CO							
9609		CO							
9611		CO							
9701		CO							
9702	54.99	CO							
9704		CO							
9705		CO							
9801	56.45	SW							
9802		CO							
9803	56.01	CO							
9804		CO							
9901	58.16	CO							
9902		CO							
9905	57.58	CO							
9906	57.72	CO							
9907	57.75	CO							
9908	57.5	CO							
9909	57.82	CO							
9914		CO							
9916	57.77	CO							
9917	57.51	CO							
9925		CO							
9002	58.67	CO							
0400		CO							
0401		CO							
0402		CO							
0500	54.76	CO							
0502		CO							
0504		CO							
0601	54.82	CO							
0603	54.32	CO							
0604		CO							
0605	54.8	CO							
0606		CO							
0608		CO							
0705	55.64	CO							
0706	54.97	CO							
0709		FO							
0802	56.92	CO							
0901	57.8	CO							
0902	57.89	CO							
0903	57.38	CO							
0904	57.62	CO							
1402	54.17	CO							
1403		CO							
1405		CO							
1407		CO							
1408		CO							
1501	54.48	CO							
1503		CO							
1504	54.57	CO							
1508		CO							
1511		CO							
1515		CO							
1516		CO							
2808		CO							
3806		CO							
5715		CO							

OS Sheet No:

Scale: 1: 1250 Date: 22/09/2015

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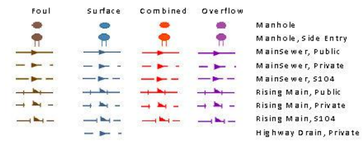
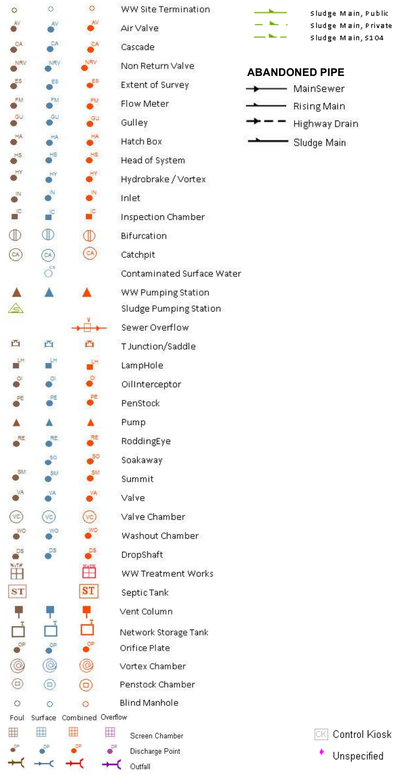
WASTE WATER SYMBOLOGY





LEGEND

MANHOLE FUNCTION

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement	DI	Ductile Iron
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CO	Concrete	ST	Steel
CSB	Concrete Segment Bolted	VC	Vitrified Clay
CSU	Concrete Segment Unbolted	PP	Polypropylene
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PSC	Plastic/Steel Composite	MAC	Masonry, Coursed
GRC	Glass Reinforced Concrete	MAR	Masonry, Random
GRP	Glass Reinforced Plastic	U	Unspecified

The position of 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.
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OS Sheet No:

Scale: 1: 1250 Date: 22/09/2015

398 Nodes

Sheet 2 of 2

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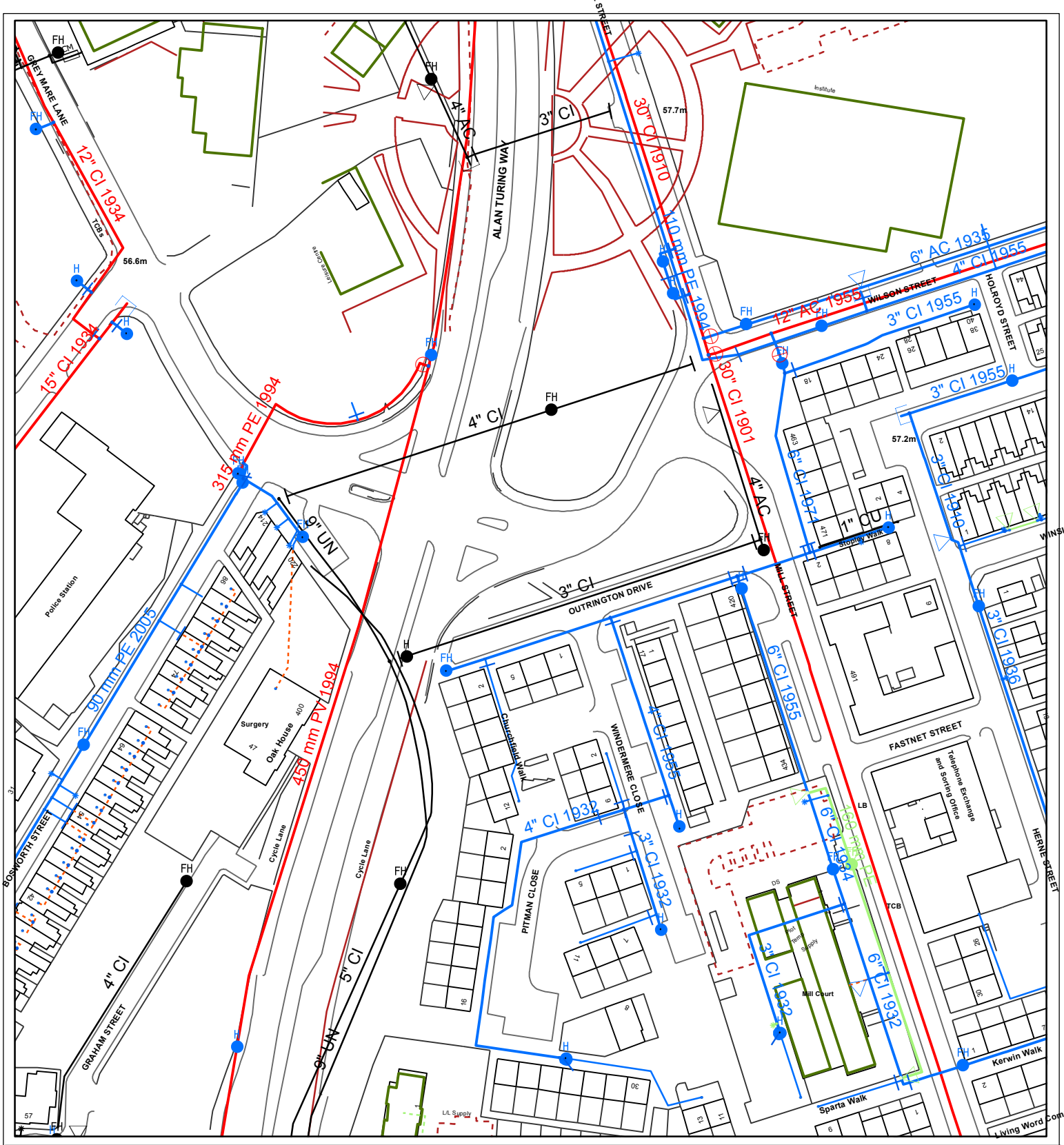
SEWER RECORDS



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Date: 22/09/2015

Extract from Map Of Water Mains

WINDERMERE CLOSE MANCHESTER M11 2AE

Legend

Proposed	Abandoned	Live	
			Distribution Main
			Trunk Main
			Comms Pipe
			Private Pipe
			Raw Water
			LDTM Raw Water
			LDTM Treated Water

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 private service pipes may be shown by a broken blue line. United Utilities will not accept any liability for any damage caused by the actual positions being different from those shown

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Conditions and Information regarding wastewater network

These general conditions and precautions apply to the wastewater network of United Utilities

Please ensure that a copy of these conditions is passed to your representative and contractor on site.

1 United Utilities provides the approximate locations of its sewers according to its records. These records are not necessarily accurate or complete nor do they normally show the positions of every sewer culvert or drain, private connections from properties to the public sewers or the particulars of any private system. No person or company shall be relieved from liability for any damage caused by reason of the actual positions and/or depths being different from those indicated. The records do indicate the position of the nearest known public sewer from which the likely length of private connections can be estimated together with the need for any off site drainage rights or easements.

2 Special requirements relative to our sewers may be indicated. United Utilities employees or its contractors will visit any site at reasonable notice to assist in the location of its underground sewers and advise any precautions that may be required to obviate any damage. To arrange a visit or for further information regarding new supplies, connections, diversions, costing, or any notification required under these General Conditions, please call us on **0345 602 0406**.

3 Where public sewers are within a site which is to be developed and do not take any drainage from outside the area, they are from an operational viewpoint redundant. The developer must identify all redundant sewers affected by the development and apply to United Utilities in writing for these sewers to be formally closed. The developer shall bear all related costs of the physical abandonment work.

4 Public sewers within the site that are still live outside the area will be subject to a “Restricted Building zone”. This would normally be a surface area equivalent to the depth of the sewer measured from the centre line of the sewer on either side. No construction will be permitted within that zone. The developer should also note that deep and wide rooted trees must not be planted in close proximity to live sewers. Access to public sewers must be maintained at all times and no interference to manholes will be permitted during construction work.

5. Where there is a public sewer along the line of a proposed development/building, arrangements shall be made by the developer at his cost to divert the sewer around the development. Where this is not possible and as a last resort, a “Building Over Agreement” will need to be completed under section 18 of the Building Act 1984. The developer shall design building foundations to ensure that no additional loading is transferred to the sewer and submit such details both to the Local Authority’s Building Control Officer and to United Utilities for approval/acceptance. United Utilities on a rechargeable basis would normally undertake all aspects of design work associated with the diversion of any part of the operational wastewater network. For further advice please email wastewaterdeveloperservices@uuplc.co.uk

6. Where there is a non-main river watercourse/culvert passing through the site, the landowner has the responsibility of a riparian owner for the watercourse/culvert and is responsible for the maintenance of the fabric of the culvert and for all works involved in maintaining the unrestricted flow through it. Building over the watercourse/culvert is not recommended. The developer must contact the local authority before any works are carried out on the watercourse/culvert. Where it is necessary to discharge surface water from the site into the watercourse/culvert the developer shall make an assessment of the available capacity of the watercourse/culvert (based on a 1 in 50 year event) and ensure that the additional flow to be discharged into the watercourse/culvert will not cause any flooding. In appropriate cases, flooding may be prevented by on-site storage. The developer shall submit the relevant details required to substantiate his development proposals. Details of any outfall proposed shall also be submitted to the Environment Agency, PO Box 12, Richard Fairclough House, Knutsford Road, Warrington, Cheshire, WA4 1HT for their approval.

7. Where there is a main river watercourse/culvert passing through the site, the developer shall submit all proposals affecting the river to the Environment Agency at the address stated in paragraph 6 for approval/acceptance.

United Utilities Water Limited 2015
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Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP
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8. Your attention is drawn also to the following:

Private drains or sewers which may be within the site.

On 1 October 2011 all privately owned sewers and lateral drains which communicate with (that is drain to) an existing public sewer as at 1 July 2011 will become the responsibility of the sewerage undertaker. This includes private sewers upstream of pumping stations that have yet to transfer, but excludes lengths of sewer or drain that are the subject of an on-going appeal or which have been excluded from transfer as a result of an appeal or which are on or under land opted-out by a Crown body. The transfer specifically excludes sewers and lateral drains owned by a railway undertaker. Sewers upstream of such assets, however, are transferred. Such assets may not be recorded on the public sewer record currently as it was not a requirement to keep records of previously private sewers and drains.

Applications to make connections to the public sewer.

The developer must write to United Utilities requesting an application form that must be duly completed and returned. No works on the public sewer shall be carried out until a letter of consent is received from United Utilities.

Sewers for adoption If an agreement for the adoption of sewers under Section 104 of the Water Industry Act 1991 is being contemplated, a submission in accordance with “Sewers for Adoption”, Seventh Edition, published by the Water Research Centre (2001) Plc, Henley Road, Medmenham, PO Box 16, Marlow, Buckinghamshire, SL7 2HD will be required, taking into consideration any departures from the general guide stipulated by United Utilities.

Further consultation with United Utilities.

Developers wishing to seek advice or clarification regarding sewer record information provided should contact United Utilities to arrange an appointment. A consultation fee may be charged, details of which will be made available at the time of making an appointment.

9. Combined sewers, foul sewers, surface water sewers, and pumped mains. These are shown separately in a range of colours or markings to distinguish them on our drawings, which are extracts from the statutory regional sewer map. A legend and key is provided on each extract for general use, although not all types of sewer will be shown on every extract.

Combined sewers shown coloured red carries both surface water and foul sewage, especially in areas where there is no separate surface water sewerage system.

Foul sewers coloured brown may also carry surface water and there may be no separate surface water system indicated in the immediate area. Both combined and foul sewers carry wastewater to our treatment works before it can safely be returned to the environment.

Surface water sewers coloured blue on our drawings are intended only to carry uncontaminated surface water (e.g. rainfall from roofs, etc) and they usually discharge into local watercourses. It is important for the protection of the environment and water quality that only uncontaminated surface water is connected to the surface water sewers. Improper connections to surface water sewers from sink wastes, washing machines and other domestic use of water can cause significant pollution of watercourses.

Pumped mains, rising mains and sludge mains will all be subject to pumping pressures and are neither suitable nor available for making new connections.

Highway drains, when included, show as blue and black dashed lines. Highway drains are not assets belonging to United Utilities and are the responsibility of local authorities.

1. For information regarding future proposals for construction of company apparatus please write to United Utilities, PO Box 453, Warrington, WA5 3QN.
2. For information regarding easements, deeds, grants or wayleaves please write to United Utilities Property Solutions, Coniston Buildings, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3UU **Tel: 01925 731 365**

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Conditions and Information regarding water distribution apparatus

These general conditions and precautions apply to the water distribution system of United Utilities

Please ensure that a copy of these conditions is passed to your representative and contractor on site.

1. United Utilities provides approximate locations of its water mains or apparatus according to its records. These records are not necessarily accurate or complete nor do they normally show the positions of private service pipes from the mains to properties. Where service pipes are shown, a blue broken line indicates their approximate position. No person or company shall be relieved from liability for any damage caused by reason of the actual positions and/or depths being different from those indicated.
2. Special requirements relative to our apparatus may be indicated. United Utilities employees will visit any site at reasonable notice to assist in the location of its underground water apparatus and advise any precautions that may be required to obviate any damage. To arrange a visit or for further information regarding new supplies, connections, diversions, costing, future proposals for construction of company apparatus or any notification required under these General Conditions, please telephone us on **0345 746 2200** or write to United Utilities, PO Box 453, Warrington, WA5 3QN.
3. In order to achieve safe working conditions adjacent to any water apparatus the following should be observed;
   (a) All water apparatus should be located by hand digging prior to the use of mechanical excavation.

   (b) During construction work where heavy plant may have to cross the line of a water main, and the main is not under a carriageway of adequate standard of construction, crossing points should be suitably reinforced with sleepers, steel plates or a specially constructed reinforced concrete raft as necessary. These crossing points should be clearly indicated and crossing the line of the water main at other places should be prevented. United Utilities employees will advise on the type of reinforcement necessary. This is particularly important on agricultural or open land, where tilling or erosion may have significantly reduced the original cover.

   (c) No explosive should be used within 32 metres of any United Utilities apparatus without prior consultation with United Utilities.

   (d) Where it is proposed to carry out piling within 15 metres of any water main United Utilities should be consulted so that the affected main may be surveyed.

4. During any excavation, it is important that measures should be taken to ensure continued support for any water main:

   (a) Where excavation of trenches adjacent to any water main is likely to affect its support, the main must be supported to the satisfaction of United Utilities.

   (b) Where a trench is excavated crossing or parallel to the line of a water main, the backfill should be adequately compacted to prevent any settlement which could subsequently cause damage to the main. In special cases it may be necessary to provide permanent support to a main which has been exposed over the length of the excavation before back-filling and reinstatement is carried out. No back-filled concrete should contact the main.

5. No other apparatus should be laid over and along the line of a water main irrespective of clearance. A minimum clearance of 450 millimetres should be allowed between any plant being installed and an existing main, to facilitate maintenance and repair, whether the adjacent plant is parallel to or crossing the main. No manhole, chamber, or other obstruction should be built over or around a water main.

6. Where a water main is coated with special wrapping and the wrapping is damaged, even to a minor extent, United Utilities must be notified, and the excavation must be left open for ready access so that repairs can be made. In case of any material damage to the main itself causing leakage, or weakening of the mechanical strength of the pipe, the person or body responsible should immediately notify United Utilities in order that the necessary remedial work can be carried out. The full cost of the necessary remedial work will be charged to the person or body responsible for the damage.

United Utilities Water Limited 2015
Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP
www.unitedutilities.com

Registered in England and Wales Registered Number 2366678

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United Utilities
helping life flow smoothly

1. If you propose to change existing levels over water mains you will need to inform us. We will need specific locations to be identified together with precise details as to the scale of the proposed changes to existing ground levels. Changes to existing levels may require the diversion of our apparatus at your cost. However, in certain circumstances we may wish to leave our apparatus where it is. On these occasions you will usually be required to protect our apparatus by means of a concrete raft and either raise or lower any surface boxes affected.
2. Under no circumstances should our surface boxes be either buried or left in a situation where they are raised above finished ground levels. You should reuse and re-set any surface boxes affected by your works into the new surface so that they align over the water apparatus below. You will be responsible for the cost of repairing any damage to our apparatus as a result of your works.
3. Where proposals involve resurfacing, you must notify United Utilities if your excavation will be greater than 750mm in the highway and 300mm in a footpath, verge or other location.
4. For information regarding easements, deeds, grants, licences or wayleaves, please write to United Utilities Property Solutions, Coniston Buildings, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington WA5 3UU (**Tel 01925 731 365**).

Tree planting restrictions over water mains

a) Poplar and willow trees have extensive root systems and should not be planted within 10 metres of any water main.

b) The following trees and those of a similar size, whether they are deciduous or evergreen, should not be be planted within six metres of any water main:

- Ash, beech, birch, elm, horse chestnut, lime, oak, sycamore;
- Apple trees and pear trees;
- Most conifers.

c) United Utilities requires access to the route of its mains at all times to inspect for leaks and carry out surveys. We recommend that no shrubs or bushes which might obstruct or interfere with our access should be planted within one metre of the centre line of any water main.

d) There may be instances when both United Utilities and the landowner will wish to plant shrubs or bushes close to the water main for screening or other purposes. The following shallow rooting shrubs would be suitable for this purpose:

- Blackthorn, broom, cotoneaster, elder;
- Hazel, laurel, privet, quickthorn, snowberry;
- Most ornamental flowering shrubs.

e) In areas where soft fruit is grown, blackcurrant, raspberries and gooseberries may be planted close to the main, provided that a path is left clear for inspection access and surveys. United Utilities can give additional advice where required in particular circumstances.

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WASTE WATER SYMBOLOGY

Foul	Surface	Combined	Overflow	
				Manhole
				Manhole, Side Entry
				MainSewer, Public
				MainSewer, Private
				MainSewer, S104
				Rising Main, Public
				Rising Main, Private
				Rising Main, S104
				Highway Drain, Private

Overflow

- Sludge Main, Public
- Sludge Main, Private
- Sludge Main, S104

Abandoned Pipe

- MainSewer
- Rising Main
- Highway Drain
- Sludge Main

Foul	Surface	Combined	
ST		ST	Septic Tank
			Vent Column
			Network Storage Tank
			Orifice Plate
			Vortex Chamber
			Penstock Chamber
			Blind Manhole

Foul	Surface	Combined	
AV	AV	AV	WW Site Termination
			Air Valve
CA	CA	CA	Cascade
NRV	NRV	NRV	Non Return Valve
ES	ES	ES	Extent of Survey
FM	FM	FM	Flow Meter
GU	GU	GU	Gulley
HA	HA	HA	Hatch Box
HS	HS	HS	Head of System
HY	HY	HY	Hydrobrake / Vortex
IN	IN	IN	Inlet
IC	IC	IC	Inspection Chamber
			Bifurcation
CA	CA	CA	Catchpit
			WW Pumping Station

Foul	Surface	Combined	
			Sludge Pumping Station
		V	Sewer Overflow
			T Junction/Saddle
LH	LH	LH	LampHole
OI	OI	OI	OilInterceptor
PE	PE	PE	PenStock
			Pump
RE	RE	RE	RoddingEye
	SO	SO	Soakaway
SM	SM	SM	Summit
VA	VA	VA	Valve
VC	VC	VC	Valve Chamber
WO	WO	WO	Washout Chamber
DS	DS	DS	DropShaft
WTW		WwTW	WW Treatment Works

Foul	Surface	Combined	Overflow	
				Screen Chamber
DP	DP	DP	DP	Discharge Point
				Outfall

- CK Control Kiosk
- Unspecified

Legend

MANHOLE FUNCTION		SEWER SHAPE			
FO	Foul	CI	Circular	TR	Trapezoidal
SW	Surface Water	EG	Egg	AR	Arch
CO	Combined	OV	Oval	BA	Barrel
OV	Overflow	FT	Flat Top	HO	HorseShoe
		RE	Rectangular	UN	Unspecified
		SQ	Square		

SEWER MATERIAL			
AC	Asbestos Cement	DI	Ductile Iron
BR	Brick	VC	Vitrified Clay
CO	Concrete	PP	Polypropylene
CSB	Concrete Segment	PF	Pitched Fibre
CSU	Concrete Segment	MA	Masonry, Coursed
CC	Concrete Box Culverted	MA	Masonry, Random
PSC	Plastic / Steel	RP	Reinforced Plastic
GR	Glass Reinforced	CI	Cast Iron
GRP	Glass Reinforced	SI	Spun Iron
PVC	Polyvinyl Chloride	ST	Steel
PE	Polyethylene	U	Unspecified

CLEAN WATER SYMBOLOGY

PIPE WORK

Live	Proposed	
		Trunk Main - PressurisedMain
		Raw Water Aqueduct - PressurisedMain
		Raw Water Aqueduct - GravityMain
		LDTM Raw Water Distribution - PressurisedMain
		LDTM Raw Water Distribution - GravityMain
		LDTM Treated Water Distribution - PressurisedMain
		LDTM Treated Water Distribution - GravityMain
		Private Pipe - LateralLine
		Distribution Main - PressurisedMain
		Comms Pipe - LateralLine
		Concessionary Service - LateralLine

ABANDONED PIPE

- Trunk Main
- Raw Water Aqueduct
- LDTM Raw Water Distribution
- LDTM Treated Water Distribution
- Private Pipe
- Distribution Main
- Comms Pipe
- Concessionary Service

NODES/FURNITURES

Live	Proposed	
		End Cap
		CC Valve
		AC Valve
		Air Valve
		Sluice Valve
		Non Return Valve
		Pressure Management Valve
		Change of Characterstic
		Anode
		Chlorination Point
		De Chlorination Point
		Bore Hole
INLET	INLET	Inlet Point
		Bulk Supply Point
FH	FH	Fire Hydrant
H	H	Hydrant

Live	Proposed	
PFH	PFH	Private Fire Hydrant
		Pump
		Site Termination
		Service Start
		Service End
PM	PM	Process Meter
		Stop Tap
		Monitor Location
SP	SP	Strainer Point
AP	AP	Access Point
HB	HB	Hatch Box
IP	IP	IP Point
RM		Route Marker
SPT	SPT	Sampling Station
LB	LB	Logger Box

PROPERTY TYPES

Live	Proposed	
		Condition Report
PB	PB	Pipe Bridges
TP	TP	Tunnels (non carrier)
		Pumping Station
		Water Treatment Works
		Private Treatment Works

Live	Proposed	
VH	VH	Valve House
		Water Tower
SR	SR	Service Reservoir
SR	SR	Supply Reservoir
Inlet AP	Inlet AP	Abstraction Point
M	M	Domestic meter
CM	CM	Commercial meter
T	T	Telemetry Outstation

Legend

MATERIAL TYPES		LINING TYPES	
AC	ASBESTOS CEMENT	CL	CEMENT LINING
CI	CAST IRON	TB	TAR OR BITUMEN
CU	COPPER	ERL	EPOXY RESIN
CO	CONCRETE		
DI	DUCTILE IRON	INSERTION TYPES	
GI	GALVANISED IRON		
GR	GREY IRON	DD	DIE DRAWN
OT	OTHERS	DR	DIRECTIONAL DRILLING
PB	LEAD	MO	MOLING
PV	uPVC	PI	PIPELINE
SI	SPUN IRON	SL	SLIP LINED
ST	STEEL		
UN	UNKONWN		
PE	POLYETHYLENE		

APPENDIX 04

Environment Agency Correspondence

Robin Hall

From: GMMC Info Requests <InfoRequests.GMMC@environment-agency.gov.uk>
Sent: 13 June 2019 12:46
To: Robin Hall
Subject: GMMC130456BF Response 190611/CW06 FW: 8755G - Mayton St & Windermere Close - Response
Attachments: GMMC130456BF_Res.pdf; GMMC130456BF_DFM.pdf; GMMC130456BF_P4.pdf; CCA - Area External Guidance v5.pdf; Reservoir Flood Map Attachment.pdf

Dear Robin

Thank you for your enquiry which was received on 10/6/19.

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

I enclose the requested data.

We have no record of flooding affecting this site. However, this does not mean flooding has not occurred in the past or that it will not flood in future. We recommend that you also contact United Utilities and Manchester Metropolitan District Authority who may hold additional information (the former especially in relation to sewer flooding).

There are no flood defences within the vicinity of the site.

Please be aware you can check your risk of flooding on our external website https://flood-warning-information.service.gov.uk/long-term-flood-risk/

Please also note that all current EA flood risk strategy documents can be found on our external website https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities and https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Please refer to the Open Government Licence which explains the permitted use of this information.

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

Kind regards,

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

From: Robin Hall [mailto:Robin.Hall@wmlconsulting.com]
Sent: 10 June 2019 14:54
To: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Subject: 8755G - Mayton St & Windermere Close

To whom it may concern:

Please see attached pdfs indicating the existing and proposed site layouts for the above sites, upon which new residential developments are proposed.

Can you please advise if you are aware of any past, present or future flood risk issues that may affect these sites?

Kind regards

Robin Hall

WML Consulting Ltd
Civil, Structural & Geotechnical Engineers
No. 8 Oak Green | Earl Road | Stanley Green Business Park | Cheadle Hulme | Cheshire | SK8 6QL

Tel: 0161 482 0600 | email: robin.hall@wmlconsulting.com

Visit WML's Website: www.wmlconsulting.com

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Detailed Flood Map centred on Mayton Street, Manchester, M11 2AN. Created on 13/06/2019 [GMMC130456BF]

Environment Agency

1:10,001

N

Legend

- Site Location
- Model Measurements
- Main River
- Flood Zone 3
- Flood Zone 2

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Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 08708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

					Undefended													
Map Reference	Model Node Reference	Easting	Northing	Data	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	4 % AEP (1 in 25 year)	3.33 % AEP (1 in 30 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30yr Climate Change	1 % AEP (1 in 100 year) + 35yr Climate Change	1 % AEP (1 in 100 year) + 70yr Climate Change	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30yr Climate Change
1	ea013_0249_mill0543	387794	396967	Modelled Water Level (m aodN)	54.14	54.20	54.24	54.27	54.31	54.41	54.49	54.55	54.68	54.70	54.87	54.72	55.18	55.29
				Modelled Flow (cumecs)	1.02	1.26	1.43	1.59	1.79	2.37	2.91	3.38	4.49	4.67	6.66	4.89	6.97	7.00
2	ea013_0249_mill0382	387665	397020	Modelled Water Level (m aodN)	52.90	52.94	52.98	53.01	53.03	53.10	53.15	53.19	53.29	53.30	53.45	53.32	53.66	53.76
				Modelled Flow (cumecs)	1.01	1.26	1.43	1.59	1.79	2.37	2.92	3.38	4.49	4.67	6.52	4.89	10.23	12.33
3	ea013_0249_mill0272	387583	397081	Modelled Water Level (m aodN)	52.28	52.33	52.36	52.39	52.43	52.52	52.59	52.65	52.77	52.79	52.95	52.81	53.25	53.35
				Modelled Flow (cumecs)	1.01	1.26	1.43	1.59	1.79	2.37	2.92	3.38	4.49	4.68	6.52	4.89	10.11	12.29
4	ea013_0249_mill0111	387421	397094	Modelled Water Level (m aodN)	51.28	51.37	51.45	51.50	51.54	51.60	51.64	51.69	51.84	51.85	51.89	51.87	52.05	52.20
				Modelled Flow (cumecs)	1.01	1.26	1.44	1.59	1.82	2.42	2.96	3.40	4.66	4.85	6.64	5.08	10.36	12.56
5	ea013_0249_corn7640	387252	397116	Modelled Water Level (m aodN)	49.14	49.23	49.31	49.37	49.45	49.66	49.84	49.93	50.57	50.70	0.00	50.82	0.00	0.00
				Modelled Flow (cumecs)	1.87	2.31	2.68	2.98	3.38	4.52	5.58	6.10	7.77	8.03	0.00	8.26	0.00	0.00

Model data taken from Corn Brook 2017

AEP - Annual Exceedence Probability

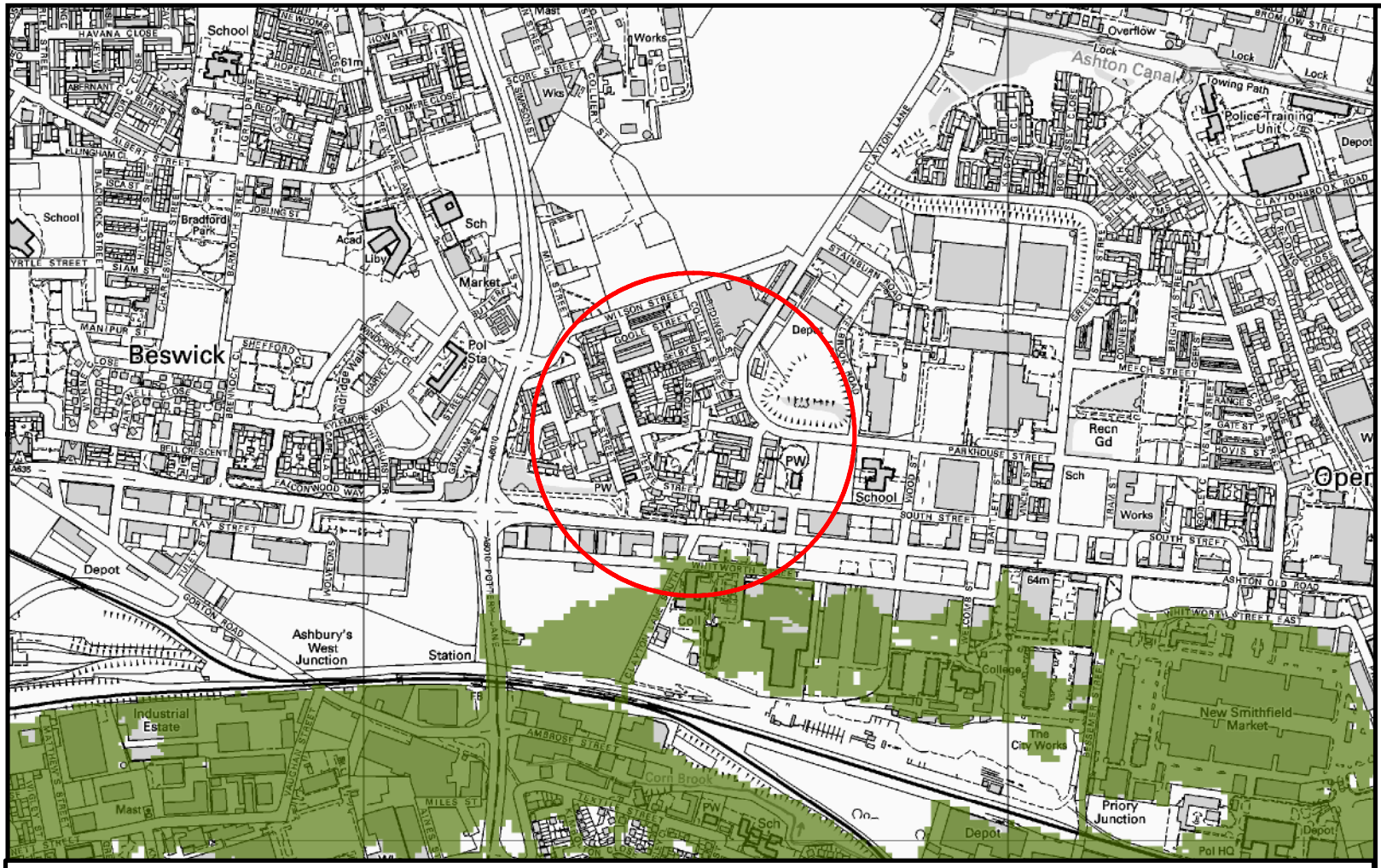
m aodN - metres above ordnance datum Newlyn

cumecs - cubic metres per second

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

Reservoir Flood Map

Environment Agency
Asiantaeth yr Amgylchedd



The area within the red circle could be at risk of flooding from the following reservoirs:

Reservoir Name	Reservoir Owner	Location	Local Authority	Environment Agency Office
Audenshaw No.2	United Utilities Water plc	391643, 396093	Tameside	Environment Agency - Greater Manchester, Merseysid
Audenshaw No.1	United Utilities Water plc	391852, 396483	Tameside	Environment Agency - Greater Manchester, Merseysid

Note - this map provides a general indication of the largest area that might be flooded if a reservoir were to fail and release the water it holds. It is taken from a national assessment and displays a worst case scenario. The map is only intended as a guide and is not a prediction of what will happen.

Important

- This map has been produced for emergency planning purposes and displays a worst case scenario.
- It is not suitable for use at an individual property scale due to the method used.
- This map does not give any information on the likelihood of reservoir flooding or on the depth or speed of floodwaters. It also does not include any smaller reservoirs (which hold less than 25,000 cubic metres of water) or reservoirs commissioned or registered after Spring 2009.
- The information should not be interpreted as stating that the location you are interested in will or won't actually flood, but simply that it is in or not in an area that could be affected by reservoir flooding as shown on the maps.

Maximum extent of flood

1:10,000

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Reservoir Flood Map

This text must be read with the extract from the Reservoir Flood Map which we have sent to you

How to use the maps

Reservoir flood maps are available to help you find out if you could be affected by reservoir flooding. Even though reservoir flooding is very unlikely it may be helpful to you to find out if you live or work in an area that could be affected. If you do, you might want to think about what you would do if an emergency did happen.

For more information on what to do if you live or work near a reservoir, including some frequently asked questions, visit our website at http://www.environment-agency.gov.uk/flood.

The maps have been prepared for emergency planning purposes and for this reason they reflect a credible worst case scenario – this means that if a reservoir failure did occur it would most likely be far less severe than the scenario shown in the maps. We've mapped a credible worst case scenario so that emergency planners have all the information they might need to increase public safety.

Reservoir safety

Reservoirs in the UK have an extremely good safety record with no failures resulting in the loss of life since 1925. Reservoirs are more carefully maintained now. This means reservoir flooding is very unlikely to happen.

The Environment Agency is the enforcement authority for the Reservoirs Act 1975 in England. All large reservoirs that we think could endanger human life must be inspected and supervised by reservoir engineers. We ensure that reservoirs are regularly inspected and essential safety work is carried out.

For more information on reservoir safety visit our website at:

https://www.gov.uk/guidance/reservoirs-owner-and-operator-requirements.

Emergency planning

Lead Local flood authorities are responsible for coordinating emergency plans for reservoir flooding and ensuring communities are well prepared. Lead Local flood authorities work with other members of the Local Resilience Forum (LRF) to develop generic and site-specific emergency plans, depending on local circumstances and priorities.

If you want to find out about local emergency plans you should contact the responsible lead local flood authority as identified on the map.

APPENDIX 05

United Utilities Correspondence

United Utilites Water Limited
Property Searches
Ground Floor Grasmere House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP
DX 715568 Warrington
Telephone 0370 751 0101

Property.searches@uuplc.co.uk

TADW Architects

6 St Petersgate
Stockport

SK1 1HD

Your Ref: 01999
Our Ref: 14/ 1141822
Date: 22/9/2015

FAO:

Dear Sirs

Location: Windermere Close Manchester M11 2AE

I acknowledge with thanks your request dated 21/09/15 for information on the location of our services.

Please find enclosed plans showing the approximate position of our 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 - Wastewater & Water Distribution Plans which are shown overleaf.

I also attach United Utilities' General Condition and Information sheets regarding United Utilities wastewater network and water distribution apparatus, which details contact numbers for additional services (i.e. new supplies, connections, diversions) which we are unable to deal with at this office. You should ensure that the Condition and Information sheets are made available to anyone carrying out any works which may affect our apparatus.

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

If you have any queries regarding this matter please telephone us on 0370 7510101.

Yours Faithfully,

S McManus.

Sue McManus
Operations Manager
Property Searches

UUWaterLimited 2014

United Utilities Water Limited
Registered in England & Wales No. 2366678
Registered Office: Haweswater House,
Lingley Mere Business Park, Lingley Green Avenue,
Great Sankey, Warrington, WA5 3LP

TERMS AND CONDITIONS - WASTERWATER & 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:

1. 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.

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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.

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Refno	Cover	Func	Invert	Size.x	Size.y	Shape	Matl	Length	Grad
8507		SW							
8607		CO							
8906	58.31	CO	0	225		CI	VC	30.15	
9401	52.14	CO	49.35	1050		CI	BR	31.95	
9402		CO	0	760	610	EG	BR	26.13	
9403		CO							
9404		SW							
9503	52.59	CO	48.06	450		CI	CO	4.11	103
9504	53.89	CO	50.89	1050		CI	BR	32.65	21
9505	52.42	CO	45.38	600		CI	VC	32.41	108
9509	53.89	CO							
9510	53.28	CO							
9511		SW							
9512		SW							
9513		SW	0			CI		15.01	
9601	54.17	CO							
9602		SW							
9603		SW							
9604		SW							
9605		SW							
9606		FO							
9607		FO							
9608	53.91	CO							
9609		CO							
9610	53.61	CO							
9611		FO							
9612	53.87	CO							
9613		SW		225		CI	UN	44.96	
9614		FO							
9615		CO							
9701		SW							
9702		SW							
9703	54.79	CO							
9918	57.96	CO	0	300		CI	VC	53.34	
0501	54.25	CO	46.13	600		CI	CO	74.33	206
0505	54.91	CO							
0506	54.55	CO							
0507	53.67	CO							
0508	53.85	CO	0	450		CI	VC	16.04	
0509		SW	0			CI		40.72	
0601		SW							
0602	54.98	CO							
0609		SW	0			CI		8.03	
0701	55.92	CO							
0702	56.04	CO	54.26	150		CI	VC	5.39	
0703	56.24	CO	53.89	225		CI	VC	18.25	73
0707	55.33	CO							
0800	57.06	CO	0	450		CI	VC	31.86	
0803	57.16	CO	52.48	450		CI	VC	37.44	208
0804	57.03	CO							
0815	56.31	CO							
0817		CO	0	225		CI	VC	24.04	
0900	58.87	CO	56.65	300		CI	VC	72.35	
1401		CO	0	300		CI	BR	48.77	
1500	54.6	CO	51.99	300		CI	VC	19.32	52
1502	54.51	CO							
1505	54.87	CO	51.19	450	675	EG	BR	5	
1506	54.94	CO							
1512	54.48	CO							
1513	54.32	CO							
1514	54.21	CO							
1600	55.6	CO	50.55	300		CI	VC	70.5	95
1601	55.13	CO	52.73	300		CI	VC	77.18	107
1603	55.15	CO							
1604	55.05	CO							
1701	56.18	CO	53.13	375		CI	VC	11.31	
1702	56.36	CO	0	450		CI	VC	33.42	
1703	56.01	CO							
1704	56.1	CO							
1705	55.71	CO							
1706	55.97	CO	51.57	300		CI	VC	72.21	71
1800	57.94	CO	53.09	450		CI	VC	45.88	79
1801	57.79	SW							
1802	57.67	CO	56.02	150		CI	VC	3.61	
1803	56.94	CO	53.67	375		CI	VC	19.32	97
1804	56.62	CO							
1809		CO	0	450		CI	CO	48.88	
2400	54.95	CO	51.72	375		CI	VC	39.11	
2401	54.42	CO							
2403	55.13	CO	52.12	300		CI	VC	14.14	74
2500	55.3	CO							
2502	55.52	CO	52.3	300		CI	CO	4.12	
2503	55.58	CO							
2504		CO	0	375		CI	VC	10.84	
2600	56.23	CO	54.37	225		CI	VC	39.32	68
2601	55.98	CO							
2603	55.88	CO							
2605	55.57	CO	52.57	300		CI	VC	14.76	246
2606	55.68	CO	52.04	450		CI	VC	52.77	129
2610	55.44	CO	53.34	225		CI	VC	35.51	47
2700	56.57	CO	53.96	300		CI	VC	44.27	114
2701	56.32	CO							
2702	55.97	CO	52.99	300		CI	VC	4.12	
2705		CO							
2800	57.86	CO							
2803	57.8	CO							
2804	57.61	CO	0	300		CI	VC	32.28	
2805	57.34	CO	53.68	300		CI	VC	72.51	
2900	58.37	CO	56.04	375		CI	VC	40.52	43
2903	58.2	CO							
2904	58.11	CO							
2905	58.06	CO	53.36	450		CI	VC	25.3	
3400	55.39	CO	52.47	375		CI	VC	44.1	735
3404	55.5	CO							
3406	55.32	CO	47.53	600		CI	VC	125.48	
3500	55.95	CO	52.35	375		CI	VC	19.31	176
3501	55.65	CO	52.57	300		CI	CO	40.31	149
3502	55.84	CO							
3503	56.24	CO							
3600	56.15	CO	54.75	225		CI	VC	38.9	0
3603	56.05	CO							
3604	55.77	CO	52.22	375		CI	VC	33.24	
3606	55.94	CO	51.78	450		CI	CO	26.93	0
3607	55.93	CO							
3612		CO							
3700	57.05	CO	54.43	300		CI	VC	37.95	82
3701	57.19	CO							
3702	57.24	CO	54.38	300		CI	VC	20.88	44
3703	57.02	CO							
3704	57.26	CO							
3705	56.73	CO							
3706	57.11	CO							
3707	56.55	CO	54.01	375		CI	VC	115.44	2
3710		CO	0	600		CI	VC	4.54	
3714		CO							
3722	1500	CO							
3723	1200	CO							
3801	57.4	CO							
3802		CO							
3803	57.54	CO							
4409	55.64	CO	48.14	450		CI	VC	40.05	138
4500	55.67	CO	51.52	450		CI	VC	30.59	
4501	56.13	CO	53.28	225		CI	VC	55.58	116
4502	56.11	CO	50.96	450		CI	VC	18.03	78
4600	56.63	CO							
4601	56.09	CO							
4602	56.43	CO	52.68	300		CI	VC	37.48	250
4603	56.83	CO	53.09	300		CI	VC	42.05	81
4700	57.95	CO							
4701	57.95	CO	55.53	300		CI	VC	10.44	15
4702	57.58	CO	54.68	300		CI	VC	35.74	199
4703	58.27	CO							
4704	58.02	CO							
4705	57.96	CO	56.69	225		CI	VC	69.26	60
4706	58.17	CO	57.03	225		CI	VC	22.36	66
4708	57.95	CO	55.53	300		CI	VC	70.23	
4709	57.45	CO	53.95	300		CI	VC	35.74	83
4801	57.65	CO	54.86	300		CI	VC	43.03	
4802	57.55	CO	46.79	1200		CI	BR	84.19	63
4803	58.47	CO							

Refno	Cover	Func	Invert	Size.x	Size.y	Shape	Matl	Length	Grad
5400	55.39	CO							
5401	56.28	CO	0	1900		CI	CO	24	
5402	56.43	CO	53.48	300		CI	VC	71.34	46
5403	55.32	SW	51.25	1200		CI	BR	33.62	134
5404	55	CO							
5406	54.69	CO	53.01	600		CI	PE	28.18	7
5433	53.32	CO							
5501	56.02	CO	54.78	225		CI	VC	27.46	50
5502	55.92	CO	52.27	225		CI	VC	33.06	174
5505	55.32	CO							
5506	55.47	CO							
5507	55.67	CO	50.48	650		CI	CO	6.08	
5508	57.07	CO							
5509	56.59	CO	52.84	675		CI	CO	26.02	34
5510	56.78	CO							
5511	56.78	SW	51.33	1425		CI	BR	5.1	510
5512	56.23	SW	51.31	1425		CI	CO	14.14	236
5513	55.93	CO							
5514	55.69	CO	49.84	600		CI	CO	22.2	74
5515		CO							
5517		CO							
5518	55.85	CO	50.48	525		CI	CO	58.01	132
5600	57.2	CO	54.9	300		CI	VC	54.45	30
5601	57.52	CO	55.54	300		CI	VC	21.63	70
5603	56.15	CO	53.89	525		CI	CI	26	15
5604	56.18	SW							
5605	56.5	SW	52.65	1200		CI	BR	132.31	100
5606		SW	0	750		CI	BR	25.5	
5607	56.18	CO	54.79	300		CI	VC	58.05	142
5700	68.39	CO	55.51	375		CI	VC	21.19	424
5701	58.58	CO	56.48	225		CI	VC	23.77	
5702	58.71	CO	56.96	225		CI	VC	32.9	43
5705	58.24	CO							
5706	58.73	CO							
5707	58.14	CO							
5708	58.2	CO	55.45	375		CI	VC	44.61	165
5709	58.62	CO	56.19	225		CI	VC	19.7	
5710	58.7	CO	56.02	225		CI	VC	36.4	46
5711	58.18	CO	56.73	225		CI	VC	20.62	
5712	58	CO							
5713	57.85	SW	53.94	750		CI	BR	51.62	
5714	57.87	CO							
5716	57.83	CO							
5721		CO							
5801	60.36	CO	0	300		CI	VC	33.84	
5802	58.66	CO	0	300		CI	VC	33.24	
5803	59	CO							
5804	58.61	CO							
5805	58.58	CO	43.7	1350		CI	BR	3.16	
5806	58.49	CO	0	450		CI	BR	5.39	
5808	58.59	CO	56.92	375		CI	VC	45.54	32
5809	58.79	CO	57.6	225		CI	VC	37.95	59
6408		CO							
6500	57.08	CO							
6501	57.66	CO	53.87	675		CI	CO	20	38
6600	58.2	SW							
6601	57.3	SW	55	300		CI	VC	26.08	87
6602	57.4	SW							
6603	57.43	CO							
6700	60.14	CO	57.16	300		CI	VC	22.02	44
6701	59.46	CO							
6802	61.18	SW							
6805	60.38	CO							
1001	58.82	CO							
2002	58.45	CO	0	300		CI	VC	80.7	
9508		CO							
9706		CO							
9924		CO	0	300		CI	VC	29.43	
8026		CO							
8027		CO							
8028		CO							
8029		CO							
0503		CO							
0905		CO							
1509		CO	0	380		CI	VC	59.21	
1605		CO							
1608		SW							
2405		CO							
2604		CO							
2703		CO	0	300		CI	VC	24.7	
2704		SW	0					64.31	
2806		CO							
2807		CO	55.6	375		CI	VC	31.63	12
2906		CO							
3402		CO							
3504		CO							
3507		CO							
3508		CO							
3605		CO							
3608		CO							
3609		CO							
3709		CO	0	2600		CI	BR	91.78	
3711		CO	52.59	375		CI	VC	53.72	153
3716		CO							
3718		CO							
3720		CO							
4405		CO	0	2625		CI	BR	77.1	
4414		CO	0	450		CI	VC	10.05	
4503		CO							
4505		CO							
4506		CO							
4507		CO							
4806		CO							
4901		CO	0	450		CI	BR	117.17	
5411		CO	0	300		CI	VC	24.19	
5414		SW	51	300		CI	BR	34.54	133
5503		CO							
5504		SW							
5519		CO							
5602		SW							
5613		CO							
5703		CO							
5718		CO							
5719		CO	0	225		CI	VC	15.23	
5724		CO	0	300		CI	VC	36.06	
5725		CO	0	225		CI	VC	14.32	
5727		CO							
5811		CO	0	675		CI	VC	8.25	
5812		CO	0	375		CI	VC	73.68	
5813		CO							
5814		CO							
5815		CO	0	300		CI	VC	19.34	
5816		CO							
6606		CO							
6809		CO	0	375		CI	VC	30.61	
8501		CO							
8502		CO							
8506		CO	45.08	600		CI	VC	64.28	
8033		CO							
8034		CO							
8035		CO							
8036		CO							
1404		CO							
1507		CO							
1510		CO							
1602		CO							
1700		CO							
1707		CO							
1708		CO							
1808		CO							
2402		CO							
2406		CO							
2608		CO							
2613		CO							
2801		CO							
2802		CO							
2901		CO	53.45	375		CI	VC	7.28	182
3401		CO							
3403		CO							

WASTE WATER SYMBOLOGY

Foul Surface Combined Overflow

Manhole
Manhole, Side Entry
MainSewer, Public
MainSewer, Private
MainSewer, S104
Rising Main, Public
Rising Main, Private
Rising Main, S104
Highway Drain, Private

Foul Surface Combined

WW Site Termination
Air Valve
Cascade
Non Return Valve
Extent of Survey
Flow Meter
Gulley
Hatch Box
Head of System
Hydrobrake / Vortex
Inlet
Inspection Chamber
Bifurcation
Catchpit
Contaminated Surface Water
WW Pumping Station
Sludge Pumping Station
Sewer Overflow
TJunction/Saddle
LampHole
OilInterceptor
PenStock
Pump
RoddingEye
Soakaway
Summit
Valve
Valve Chamber
Washout Chamber
DropShaft
WW Treatment Works
Septic Tank
Vent Column
Network Storage Tank
Orifice Plate
Vortex Chamber
Penstock Chamber
Blind Manhole

Foul Surface Combined Overflow

Screen Chamber
Discharge Point
Outfall

Sludge Main, Public
Sludge Main, Private
Sludge Main, S104

ABANDONED PIPE

MainSewer
Rising Main
Highway Drain
Sludge Main

Control Kiosk
Unspecified

LEGEND

MANHOLE FUNCTION

FO Foul
SW Surface Water
CO Combined
OV Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement	DI	Ductile Iron
BR	Brick	PVC	Polyvinyl Chloride
PE	Polyethylene	CI	Cast Iron
RP	Reinforced Plastic Matrix	SI	Spun Iron
CO	Concrete	ST	Steel
CSB	Concrete Segment Bolted	VC	Vitrified Clay
CSU	Concrete Segment Unbolted	PP	Polypropylene
CC	Concrete Box Culverted	PF	Pitch Fibre
PSC	Plastic/Steel Composite	MAC	Masonry, Coursed
GRC	Glass Reinforced Concrete	MAR	Masonry, Random
GRP	Glass Reinforced Plastic	U	Unspecified

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OS Sheet No:

Scale: 1: 1250 Date: 22/09/2015

398 Nodes

Sheet 1 of 2

United Utilities
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SEWER RECORDS

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OS Sheet No:

Scale: 1: 1250 Date: 22/09/2015

Refno	Cover	Func	Invert	Size.x	Size.y	Shape	Matl	Length	Grad
3601		CO							
3602		CO							
3610		CO							
3713		CO							
3800		CO							
4504		CO							
4707		CO							
4800		CO	0	300		CI	VC	68.63	
4805		CO							
5405		CO							
5407		CO							
5413		CO							
5516		CO							
5520		CO							
5704		CO							
5717		CO							
5720		CO							
5722		CO							
5723		SW							
5807		CO							
5810		CO	0	1350		CI	BR	53.76	
5817		CO							
6402		CO							
6605		CO							
6804		CO							
6811		CO							
6814		CO	0	375		CI	VC	9.85	
8601	53.57	CO							
8704		CO							
8801		CO							
9501	53.98	CO							
9502	53.51	CO							
9506		CO							
9507		CO							
9601		CO							
9602	54.16	CO							
9603	54.09	CO							
9604	53.94	CO							
9605		CO							
9606		CO							
9607	54.19	CO							
9609		CO							
9611		CO							
9701		CO							
9702	54.99	CO							
9704		CO							
9705		CO							
9801	56.45	SW							
9802		CO							
9803	56.01	CO							
9804		CO							
9901	58.16	CO							
9902		CO							
9905	57.58	CO							
9906	57.72	CO							
9907	57.75	CO							
9908	57.5	CO							
9909	57.82	CO							
9914		CO							
9916	57.77	CO							
9917	57.51	CO							
9925		CO							
9002	58.67	CO							
0400		CO							
0401		CO							
0402		CO							
0500	54.76	CO							
0502		CO							
0504		CO							
0601	54.82	CO							
0603	54.32	CO							
0604		CO							
0605	54.8	CO							
0606		CO							
0608		CO							
0705	55.64	CO							
0706	54.97	CO							
0709		FO							
0802	56.92	CO							
0901	57.8	CO							
0902	57.89	CO							
0903	57.38	CO							
0904	57.62	CO							
1402	54.17	CO							
1403		CO							
1405		CO							
1407		CO							
1408		CO							
1501	54.48	CO							
1503		CO							
1504	54.57	CO							
1508		CO							
1511		CO							
1515		CO							
1516		CO							
2808		CO							
3806		CO							
5715		CO							

OS Sheet No:

Scale: 1: 1250 Date: 22/09/2015

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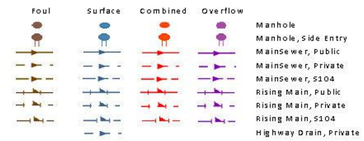
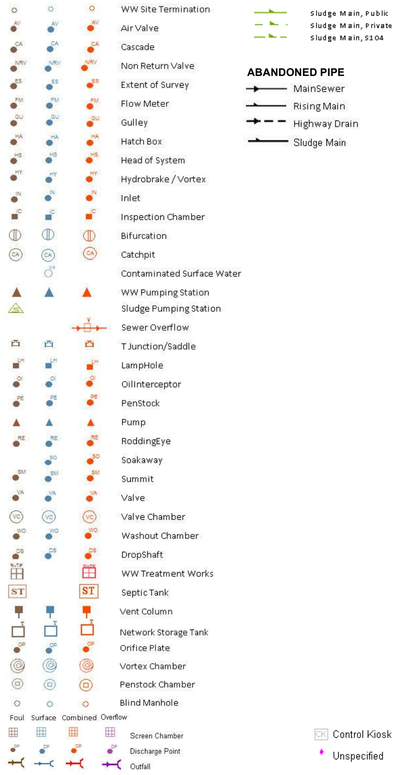
WASTE WATER SYMBOLOGY





LEGEND

MANHOLE FUNCTION

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement	DI	Ductile Iron
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CSB	Concrete Segment Bolted	VC	Vitrified Clay
CSU	Concrete Segment Unbolted	PP	Polypropylene
CC	Concrete Box Culverted	PF	Pitch Fibre
PSC	Plastic/Steel Composite	MAC	Masonry, Coursed
GRC	Glass Reinforced Concrete	MAR	Masonry, Random
GRP	Glass Reinforced Plastic	U	Unspecified

The position of 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.
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OS Sheet No:

Scale: 1: 1250 Date: 22/09/2015

398 Nodes

Sheet 2 of 2

United Utilities
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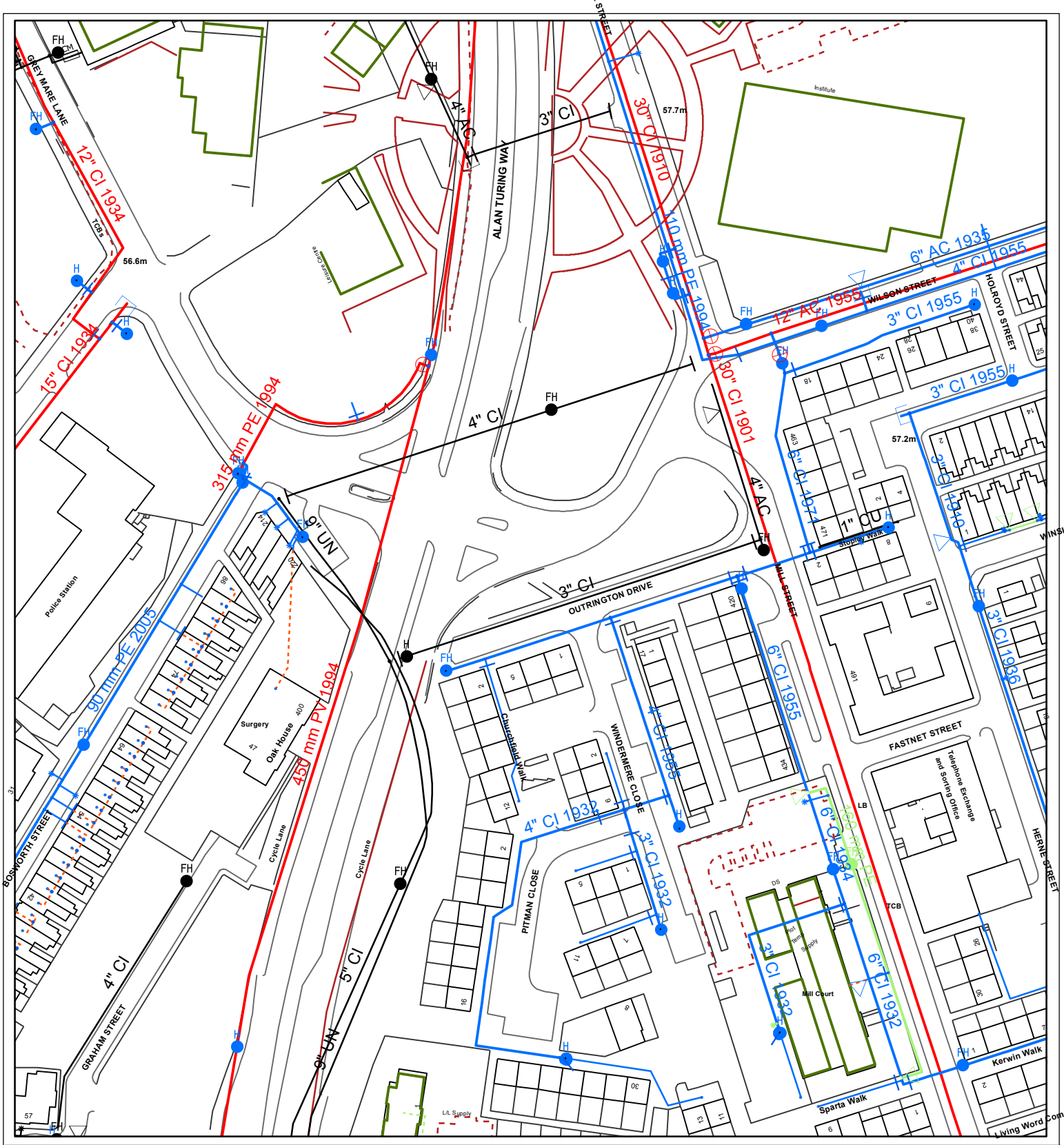
SEWER RECORDS



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Date: 22/09/2015

Extract from Map Of Water Mains

WINDERMERE CLOSE MANCHESTER M11 2AE

Legend

Proposed	Abandoned	Live	
			Distribution Main
			Trunk Main
			Comms Pipe
			Private Pipe
			Raw Water
			LDTM Raw Water
			LDTM Treated Water

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 private service pipes may be shown by a broken blue line. United Utilities will not accept any liability for any damage caused by the actual positions being different from those shown

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Conditions and Information regarding wastewater network

These general conditions and precautions apply to the wastewater network of United Utilities

Please ensure that a copy of these conditions is passed to your representative and contractor on site.

1 United Utilities provides the approximate locations of its sewers according to its records. These records are not necessarily accurate or complete nor do they normally show the positions of every sewer culvert or drain, private connections from properties to the public sewers or the particulars of any private system. No person or company shall be relieved from liability for any damage caused by reason of the actual positions and/or depths being different from those indicated. The records do indicate the position of the nearest known public sewer from which the likely length of private connections can be estimated together with the need for any off site drainage rights or easements.

2 Special requirements relative to our sewers may be indicated. United Utilities employees or its contractors will visit any site at reasonable notice to assist in the location of its underground sewers and advise any precautions that may be required to obviate any damage. To arrange a visit or for further information regarding new supplies, connections, diversions, costing, or any notification required under these General Conditions, please call us on **0345 602 0406**.

3 Where public sewers are within a site which is to be developed and do not take any drainage from outside the area, they are from an operational viewpoint redundant. The developer must identify all redundant sewers affected by the development and apply to United Utilities in writing for these sewers to be formally closed. The developer shall bear all related costs of the physical abandonment work.

4 Public sewers within the site that are still live outside the area will be subject to a “Restricted Building zone”. This would normally be a surface area equivalent to the depth of the sewer measured from the centre line of the sewer on either side. No construction will be permitted within that zone. The developer should also note that deep and wide rooted trees must not be planted in close proximity to live sewers. Access to public sewers must be maintained at all times and no interference to manholes will be permitted during construction work.

5. Where there is a public sewer along the line of a proposed development/building, arrangements shall be made by the developer at his cost to divert the sewer around the development. Where this is not possible and as a last resort, a “Building Over Agreement” will need to be completed under section 18 of the Building Act 1984. The developer shall design building foundations to ensure that no additional loading is transferred to the sewer and submit such details both to the Local Authority’s Building Control Officer and to United Utilities for approval/acceptance. United Utilities on a rechargeable basis would normally undertake all aspects of design work associated with the diversion of any part of the operational wastewater network. For further advice please email wastewaterdeveloperservices@uuplc.co.uk

6. Where there is a non-main river watercourse/culvert passing through the site, the landowner has the responsibility of a riparian owner for the watercourse/culvert and is responsible for the maintenance of the fabric of the culvert and for all works involved in maintaining the unrestricted flow through it. Building over the watercourse/culvert is not recommended. The developer must contact the local authority before any works are carried out on the watercourse/culvert. Where it is necessary to discharge surface water from the site into the watercourse/culvert the developer shall make an assessment of the available capacity of the watercourse/culvert (based on a 1 in 50 year event) and ensure that the additional flow to be discharged into the watercourse/culvert will not cause any flooding. In appropriate cases, flooding may be prevented by on-site storage. The developer shall submit the relevant details required to substantiate his development proposals. Details of any outfall proposed shall also be submitted to the Environment Agency, PO Box 12, Richard Fairclough House, Knutsford Road, Warrington, Cheshire, WA4 1HT for their approval.

7. Where there is a main river watercourse/culvert passing through the site, the developer shall submit all proposals affecting the river to the Environment Agency at the address stated in paragraph 6 for approval/acceptance.

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8. Your attention is drawn also to the following:

Private drains or sewers which may be within the site.

On 1 October 2011 all privately owned sewers and lateral drains which communicate with (that is drain to) an existing public sewer as at 1 July 2011 will become the responsibility of the sewerage undertaker. This includes private sewers upstream of pumping stations that have yet to transfer, but excludes lengths of sewer or drain that are the subject of an on-going appeal or which have been excluded from transfer as a result of an appeal or which are on or under land opted-out by a Crown body. The transfer specifically excludes sewers and lateral drains owned by a railway undertaker. Sewers upstream of such assets, however, are transferred. Such assets may not be recorded on the public sewer record currently as it was not a requirement to keep records of previously private sewers and drains.

Applications to make connections to the public sewer.

The developer must write to United Utilities requesting an application form that must be duly completed and returned. No works on the public sewer shall be carried out until a letter of consent is received from United Utilities.

Sewers for adoption If an agreement for the adoption of sewers under Section 104 of the Water Industry Act 1991 is being contemplated, a submission in accordance with “Sewers for Adoption”, Seventh Edition, published by the Water Research Centre (2001) Plc, Henley Road, Medmenham, PO Box 16, Marlow, Buckinghamshire, SL7 2HD will be required, taking into consideration any departures from the general guide stipulated by United Utilities.

Further consultation with United Utilities.

Developers wishing to seek advice or clarification regarding sewer record information provided should contact United Utilities to arrange an appointment. A consultation fee may be charged, details of which will be made available at the time of making an appointment.

9. Combined sewers, foul sewers, surface water sewers, and pumped mains. These are shown separately in a range of colours or markings to distinguish them on our drawings, which are extracts from the statutory regional sewer map. A legend and key is provided on each extract for general use, although not all types of sewer will be shown on every extract.

Combined sewers shown coloured red carries both surface water and foul sewage, especially in areas where there is no separate surface water sewerage system.

Foul sewers coloured brown may also carry surface water and there may be no separate surface water system indicated in the immediate area. Both combined and foul sewers carry wastewater to our treatment works before it can safely be returned to the environment.

Surface water sewers coloured blue on our drawings are intended only to carry uncontaminated surface water (e.g. rainfall from roofs, etc) and they usually discharge into local watercourses. It is important for the protection of the environment and water quality that only uncontaminated surface water is connected to the surface water sewers. Improper connections to surface water sewers from sink wastes, washing machines and other domestic use of water can cause significant pollution of watercourses.

Pumped mains, rising mains and sludge mains will all be subject to pumping pressures and are neither suitable nor available for making new connections.

Highway drains, when included, show as blue and black dashed lines. Highway drains are not assets belonging to United Utilities and are the responsibility of local authorities.

1. For information regarding future proposals for construction of company apparatus please write to United Utilities, PO Box 453, Warrington, WA5 3QN.
2. For information regarding easements, deeds, grants or wayleaves please write to United Utilities Property Solutions, Coniston Buildings, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3UU **Tel: 01925 731 365**

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Conditions and Information regarding water distribution apparatus

These general conditions and precautions apply to the water distribution system of United Utilities

Please ensure that a copy of these conditions is passed to your representative and contractor on site.

1. United Utilities provides approximate locations of its water mains or apparatus according to its records. These records are not necessarily accurate or complete nor do they normally show the positions of private service pipes from the mains to properties. Where service pipes are shown, a blue broken line indicates their approximate position. No person or company shall be relieved from liability for any damage caused by reason of the actual positions and/or depths being different from those indicated.
2. Special requirements relative to our apparatus may be indicated. United Utilities employees will visit any site at reasonable notice to assist in the location of its underground water apparatus and advise any precautions that may be required to obviate any damage. To arrange a visit or for further information regarding new supplies, connections, diversions, costing, future proposals for construction of company apparatus or any notification required under these General Conditions, please telephone us on **0345 746 2200** or write to United Utilities, PO Box 453, Warrington, WA5 3QN.
3. In order to achieve safe working conditions adjacent to any water apparatus the following should be observed;
   (a) All water apparatus should be located by hand digging prior to the use of mechanical excavation.

   (b) During construction work where heavy plant may have to cross the line of a water main, and the main is not under a carriageway of adequate standard of construction, crossing points should be suitably reinforced with sleepers, steel plates or a specially constructed reinforced concrete raft as necessary. These crossing points should be clearly indicated and crossing the line of the water main at other places should be prevented. United Utilities employees will advise on the type of reinforcement necessary. This is particularly important on agricultural or open land, where tilling or erosion may have significantly reduced the original cover.

   (c) No explosive should be used within 32 metres of any United Utilities apparatus without prior consultation with United Utilities.

   (d) Where it is proposed to carry out piling within 15 metres of any water main United Utilities should be consulted so that the affected main may be surveyed.

4. During any excavation, it is important that measures should be taken to ensure continued support for any water main:

   (a) Where excavation of trenches adjacent to any water main is likely to affect its support, the main must be supported to the satisfaction of United Utilities.

   (b) Where a trench is excavated crossing or parallel to the line of a water main, the backfill should be adequately compacted to prevent any settlement which could subsequently cause damage to the main. In special cases it may be necessary to provide permanent support to a main which has been exposed over the length of the excavation before back-filling and reinstatement is carried out. No back-filled concrete should contact the main.

5. No other apparatus should be laid over and along the line of a water main irrespective of clearance. A minimum clearance of 450 millimetres should be allowed between any plant being installed and an existing main, to facilitate maintenance and repair, whether the adjacent plant is parallel to or crossing the main. No manhole, chamber, or other obstruction should be built over or around a water main.

6. Where a water main is coated with special wrapping and the wrapping is damaged, even to a minor extent, United Utilities must be notified, and the excavation must be left open for ready access so that repairs can be made. In case of any material damage to the main itself causing leakage, or weakening of the mechanical strength of the pipe, the person or body responsible should immediately notify United Utilities in order that the necessary remedial work can be carried out. The full cost of the necessary remedial work will be charged to the person or body responsible for the damage.

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1. If you propose to change existing levels over water mains you will need to inform us. We will need specific locations to be identified together with precise details as to the scale of the proposed changes to existing ground levels. Changes to existing levels may require the diversion of our apparatus at your cost. However, in certain circumstances we may wish to leave our apparatus where it is. On these occasions you will usually be required to protect our apparatus by means of a concrete raft and either raise or lower any surface boxes affected.
2. Under no circumstances should our surface boxes be either buried or left in a situation where they are raised above finished ground levels. You should reuse and re-set any surface boxes affected by your works into the new surface so that they align over the water apparatus below. You will be responsible for the cost of repairing any damage to our apparatus as a result of your works.
3. Where proposals involve resurfacing, you must notify United Utilities if your excavation will be greater than 750mm in the highway and 300mm in a footpath, verge or other location.
4. For information regarding easements, deeds, grants, licences or wayleaves, please write to United Utilities Property Solutions, Coniston Buildings, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington WA5 3UU (**Tel 01925 731 365**).

Tree planting restrictions over water mains

a) Poplar and willow trees have extensive root systems and should not be planted within 10 metres of any water main.

b) The following trees and those of a similar size, whether they are deciduous or evergreen, should not be be planted within six metres of any water main:

- Ash, beech, birch, elm, horse chestnut, lime, oak, sycamore;
- Apple trees and pear trees;
- Most conifers.

c) United Utilities requires access to the route of its mains at all times to inspect for leaks and carry out surveys. We recommend that no shrubs or bushes which might obstruct or interfere with our access should be planted within one metre of the centre line of any water main.

d) There may be instances when both United Utilities and the landowner will wish to plant shrubs or bushes close to the water main for screening or other purposes. The following shallow rooting shrubs would be suitable for this purpose:

- Blackthorn, broom, cotoneaster, elder;
- Hazel, laurel, privet, quickthorn, snowberry;
- Most ornamental flowering shrubs.

e) In areas where soft fruit is grown, blackcurrant, raspberries and gooseberries may be planted close to the main, provided that a path is left clear for inspection access and surveys. United Utilities can give additional advice where required in particular circumstances.

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WASTE WATER SYMBOLOGY

Foul	Surface	Combined	Overflow	
				Manhole
				Manhole, Side Entry
				MainSewer, Public
				MainSewer, Private
				MainSewer, S104
				Rising Main, Public
				Rising Main, Private
				Rising Main, S104
				Highway Drain, Private

Overflow

- Sludge Main, Public
- Sludge Main, Private
- Sludge Main, S104

Abandoned Pipe

- MainSewer
- Rising Main
- Highway Drain
- Sludge Main

Foul	Surface	Combined	
ST		ST	Septic Tank
			Vent Column
			Network Storage Tank
			Orifice Plate
			Vortex Chamber
			Penstock Chamber
			Blind Manhole

Foul	Surface	Combined	
AV	AV	AV	WW Site Termination
			Air Valve
CA	CA	CA	Cascade
NRV	NRV	NRV	Non Return Valve
ES	ES	ES	Extent of Survey
FM	FM	FM	Flow Meter
GU	GU	GU	Gulley
HA	HA	HA	Hatch Box
HS	HS	HS	Head of System
HY	HY	HY	Hydrobrake / Vortex
IN	IN	IN	Inlet
IC	IC	IC	Inspection Chamber
			Bifurcation
CA	CA	CA	Catchpit
			WW Pumping Station

Foul	Surface	Combined	
			Sludge Pumping Station
		V	Sewer Overflow
			T Junction/Saddle
LH	LH	LH	LampHole
OI	OI	OI	OilInterceptor
PE	PE	PE	PenStock
			Pump
RE	RE	RE	RoddingEye
	SO	SO	Soakaway
SM	SM	SM	Summit
VA	VA	VA	Valve
VC	VC	VC	Valve Chamber
WO	WO	WO	Washout Chamber
DS	DS	DS	DropShaft
WTW		WwTW	WW Treatment Works

Foul	Surface	Combined	Overflow	
				Screen Chamber
DP	DP	DP	DP	Discharge Point
				Outfall

- CK Control Kiosk
- Unspecified

Legend

MANHOLE FUNCTION		SEWER SHAPE			
FO	Foul	CI	Circular	TR	Trapezoidal
SW	Surface Water	EG	Egg	AR	Arch
CO	Combined	OV	Oval	BA	Barrel
OV	Overflow	FT	Flat Top	HO	HorseShoe
		RE	Rectangular	UN	Unspecified
		SQ	Square		

SEWER MATERIAL			
AC	Asbestos Cement	DI	Ductile Iron
BR	Brick	VC	Vitrified Clay
CO	Concrete	PP	Polypropylene
CSB	Concrete Segment	PF	Pitched Fibre
CSU	Concrete Segment	MA	Masonry, Coursed
CC	Concrete Box Culverted	MA	Masonry, Random
PSC	Plastic / Steel	RP	Reinforced Plastic
GR	Glass Reinforced	CI	Cast Iron
GRP	Glass Reinforced	SI	Spun Iron
PVC	Polyvinyl Chloride	ST	Steel
PE	Polyethylene	U	Unspecified

CLEAN WATER SYMBOLOGY

PIPE WORK

Live	Proposed	
		Trunk Main - PressurisedMain
		Raw Water Aqueduct - PressurisedMain
		Raw Water Aqueduct - GravityMain
		LDTM Raw Water Distribution - PressurisedMain
		LDTM Raw Water Distribution - GravityMain
		LDTM Treated Water Distribution - PressurisedMain
		LDTM Treated Water Distribution - GravityMain
		Private Pipe - LateralLine
		Distribution Main - PressurisedMain
		Comms Pipe - LateralLine
		Concessionary Service - LateralLine

ABANDONED PIPE

- Trunk Main
- Raw Water Aqueduct
- LDTM Raw Water Distribution
- LDTM Treated Water Distribution
- Private Pipe
- Distribution Main
- Comms Pipe
- Concessionary Service

NODES/FURNITURES

Live	Proposed	
		End Cap
		CC Valve
		AC Valve
		Air Valve
		Sluice Valve
		Non Return Valve
		Pressure Management Valve
		Change of Characterstic
		Anode
		Chlorination Point
		De Chlorination Point
		Bore Hole
INLET	INLET	Inlet Point
		Bulk Supply Point
FH	FH	Fire Hydrant
H	H	Hydrant

Live	Proposed	
PFH	PFH	Private Fire Hydrant
		Pump
		Site Termination
		Service Start
		Service End
PM	PM	Process Meter
		Stop Tap
		Monitor Location
SP	SP	Strainer Point
AP	AP	Access Point
HB	HB	Hatch Box
IP	IP	IP Point
RM		Route Marker
SPT	SPT	Sampling Station
LB	LB	Logger Box

PROPERTY TYPES

Live	Proposed	
		Condition Report
PB	PB	Pipe Bridges
TP	TP	Tunnels (non carrier)
		Pumping Station
		Water Treatment Works
		Private Treatment Works

Live	Proposed	
VH	VH	Valve House
		Water Tower
SR	SR	Service Reservoir
SR	SR	Supply Reservoir
Inlet AP	Inlet AP	Abstraction Point
M	M	Domestic meter
CM	CM	Commercial meter
T	T	Telemetry Outstation

Legend

MATERIAL TYPES		LINING TYPES	
AC	ASBESTOS CEMENT	CL	CEMENT LINING
CI	CAST IRON	TB	TAR OR BITUMEN
CU	COPPER	ERL	EPOXY RESIN
CO	CONCRETE		
DI	DUCTILE IRON	INSERTION TYPES	
GI	GALVANISED IRON		
GR	GREY IRON	DD	DIE DRAWN
OT	OTHERS	DR	DIRECTIONAL DRILLING
PB	LEAD	MO	MOLING
PV	uPVC	PI	PIPELINE
SI	SPUN IRON	SL	SLIP LINED
ST	STEEL		
UN	UNKONWN		
PE	POLYETHYLENE		

APPENDIX 06

Manchester Council Correspondence

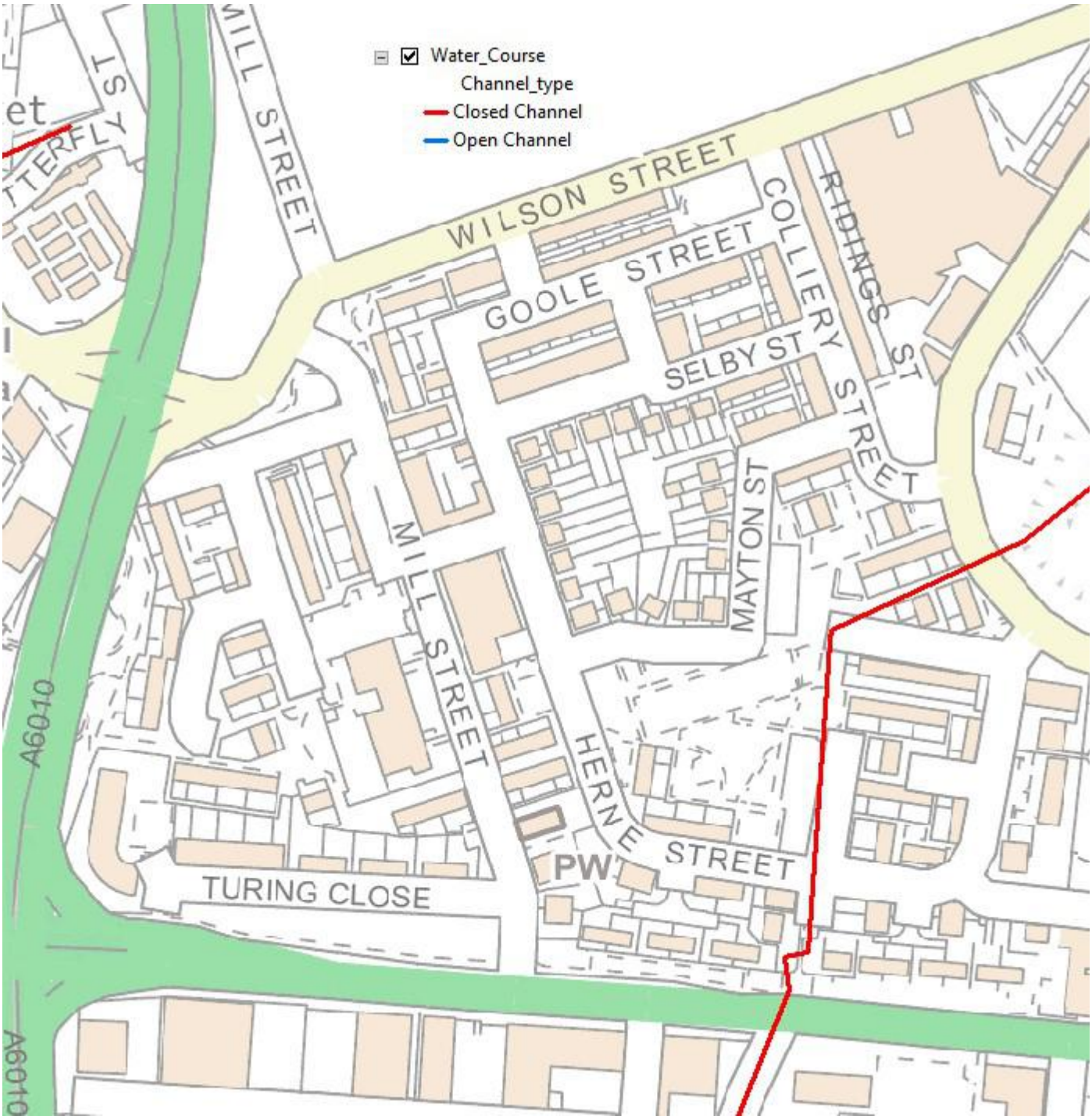
Robin Hall

From:	z.todorovic@manchester.gov.uk on behalf of floodriskmanagement@manchester.gov.uk
Sent:	19 June 2019 14:59
To:	Robin Hall
Cc:	floodriskmanagement@manchester.gov.uk
Subject:	Re: 8755G - Mayton St & Windermere Close
Attachments:	image001.png; Mayton Street.pdf; Site Location Plan.pdf; Windermere Close.pdf; Manchester City Council - SuDS Requirement for Developers.pdf

Robin

We do not hold record of any historic flooding in this area.

Please note that Clayton Brook runs along the site indicated on your plans. Attached is the indicative alignment of the watercourse, We suggest to determine the exact location through your site investigation in order to determine future site constraints depending on the location of the watercourse.



We are also attaching you the guidance for developers related to surface water management on site.

If you need further clarifications please let us know.

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

Robin Hall <Robin.Hall@wmlconsulting.com> 10/06/2019 14:55	To	"floodriskmanagement@manchester.gov.uk" <floodriskmanagement@manchester.gov.uk>,
	cc	
	Subject	8755G - Mayton St & Windermere Close

To whom it may concern:

Please see attached pdfs indicating the existing and proposed site layouts for the above sites, upon which new residential developments are proposed.

Can you please advise if you are aware of any past, present or future flood risk issues that may affect these sites?

Kind regards

Robin Hall

WML Consulting Ltd
Civil, Structural & Geotechnical Engineers
No. 8 Oak Green | Earl Road | Stanley Green Business Park | Cheadle Hulme | Cheshire | SK8 6QL

Tel: 0161 482 0600 | email: robin.hall@wmlconsulting.com

Visit WML's Website: www.wmlconsulting.com

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APPENDIX 07

Online Flood Mapping

Flood map for planning

Your reference	Location (easting/northing)	Created
Windermere Cl	**387310/397683**	**27 Jun 2019 7:29**

Your selected location is in flood zone 1, an area with a low probability of flooding.

This means:

- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

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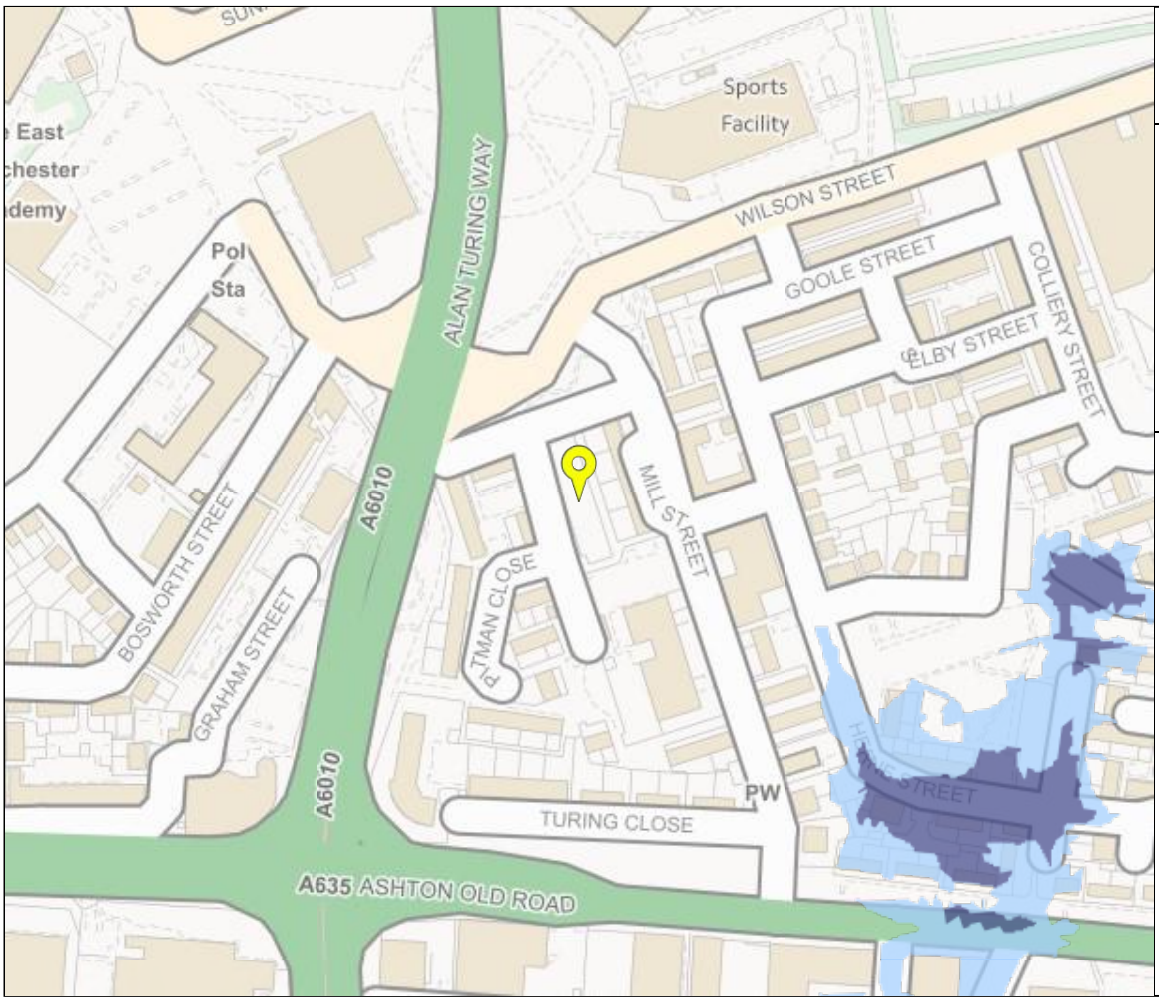
https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/



Environment Agency

Flood map for planning

Your reference
Windermere Cl

Location (easting/northing)
387310/397683

Scale
1:2500

Created
27 Jun 2019 7:29

- Selected point
- Flood zone 3
- Flood zone 3: areas benefitting from flood defences
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Flood storage area

0 20 40 60m

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APPENDIX 08

Greenfield Runoff Calculations / SW Storage Estimate

ICP SUDS Mean Annual Flood

Input

Return Period (years)	1	Soil	0.450
Area (ha)	0.200	Urban	0.200
SAAR (mm)	856	Region Number	Region 10

Results	**l/s**
QBAR Rural	1.1
QBAR Urban	1.5
Q1 year	1.3
Q1 year	1.3
Q30 years	2.4
Q100 years	2.8

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Quick Storage Estimate

Variables

FSR Rainfall

Return Period (years) 100

Region England and Wales

Map

M5-60 (mm) 18.000

Ratio R 0.356

Cv (Summer) 0.750

Cv (Winter) 0.840

Impermeable Area (ha) 0.060

Maximum Allowable Discharge (l/s) 5.0

Infiltration Coefficient (m/hr) 0.00000

Safety Factor 2.0

Climate Change (%) 40

Variables | Results | Design | Overview 2D | Overview 3D | Vt

Analyse | OK | Cancel | Help

Enter Area between 0.000 and 999.999

Quick Storage Estimate

Results

Global Variables require approximate storage of between 11 m³ and 21 m³.

These values are estimates only and should not be used for design purposes.

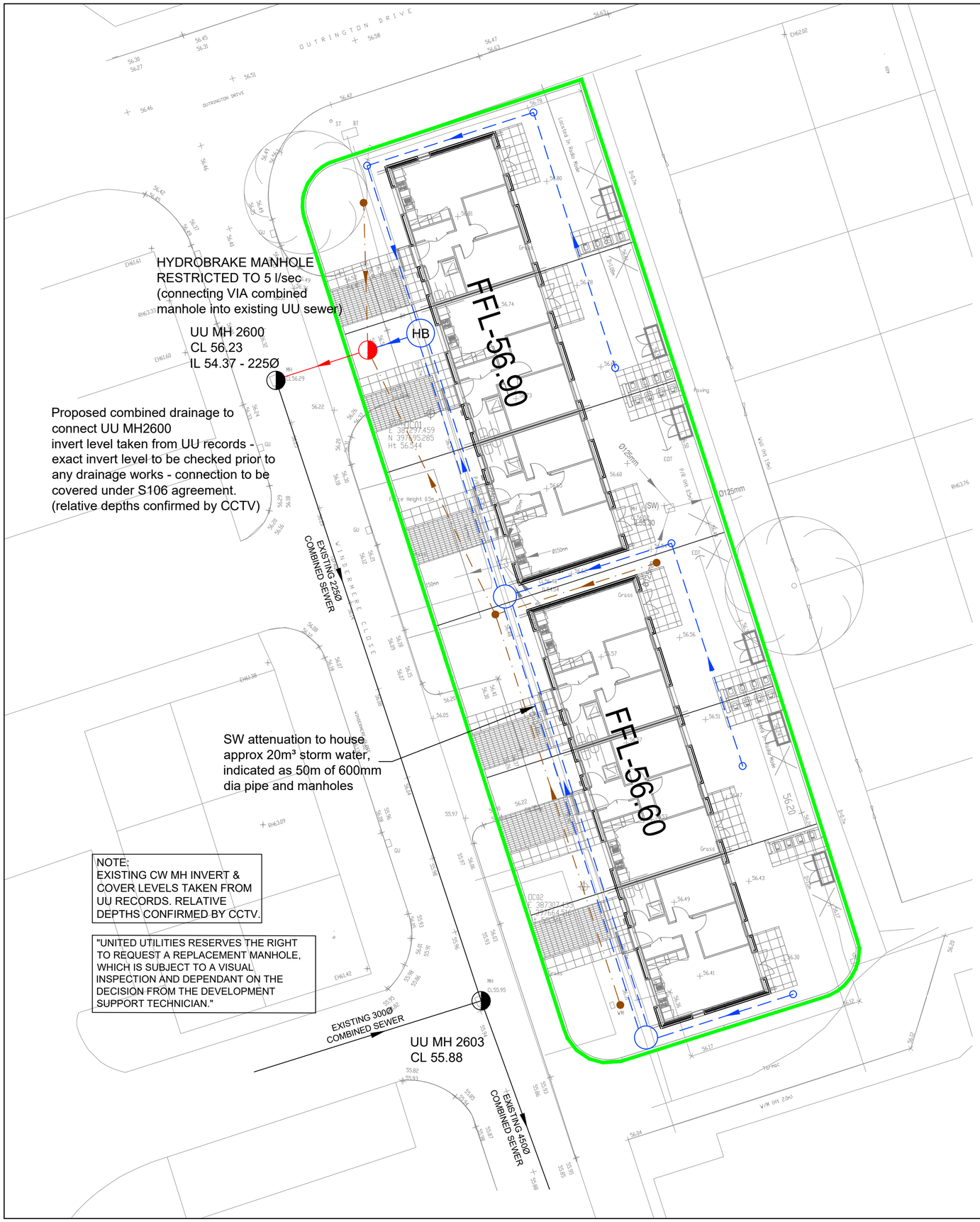
Variables | Results | Design | Overview 2D | Overview 3D | Vt

Analyse | OK | Cancel | Help

Enter Area between 0.000 and 999.999

APPENDIX 09

Drainage Strategy Plan



DRAINAGE KEY:

PROPOSED SITE BOUNDARY	
FINISHED FLOOR LEVEL	FFL 56.25
PROPOSED SW SEWER	
PROPOSED FW SEWER	
PROPOSED COMBINED SEWER	
EXISTING COMBINED SEWER	

MANHOLES -

FOR TYPICAL DRAINAGE CONSTRUCTION DETAILS REFER TO UNITED UTILITIES STANDARD DETAILS.

100mm DIA DRAIN, SUPERSLEEVE OR SIMILAR APPROVED. 150mm DIA HEPSLEEVE OR SIMILAR APPROVED FOR ALL CONNECTIONS TO SEWERS/MANHOLES AND WHERE NOTED.

PRELIMINARY

ALL DRAINAGE DETAILS
SUBJECT TO DETAILED DESIGN

GENERAL NOTES

DO NOT SCALE FROM THIS DRAWING WORK TO FIGURED DIMENSIONS ONLY.

NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS ALLOWED WITHOUT PRIOR PERMISSION IN WRITING.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS AND THE SPECIFICATION.

THE CONTRACTOR SHALL INCORPORATE ALL THE REQUIREMENTS OF THE PRE-TENDER STAGE HEALTH AND SAFETY PLAN.

SURFACE WATER DRAINAGE STRATEGY

THE SURFACE WATER DRAINAGE PROPOSALS HAVE BEEN DESIGNED IN ACCORDANCE WITH BS EN 752-4 AND THE BUILDING REGULATIONS APPROVED DOCUMENT H (2010), WHICH INDICATES THE FOLLOWING HIERARCHY FOR THE DISPOSAL OF SURFACE WATER DRAINAGE FROM DEVELOPMENT SITES:-

1. DISCHARGE VIA INFILTRATION;
2. DISCHARGE TO WATERCOURSE;
3. DISCHARGE TO SEWER.

THESE OPTIONS ARE DISCUSSED IN FURTHER DETAIL BELOW.

SURFACE WATER DISCHARGE VIA INFILTRATION
FROM THE INFORMATION AVAILABLE TO DATE, IT WOULD APPEAR THAT THE GROUND CONDITIONS AT THE SITE ARE COHESIVE (GLACIAL TILL), HENCE THE USE OF INFILTRATION / SOAKAWAY TECHNIQUES IS CONSIDERED TO NOT BE FEASIBLE.

SURFACE WATER DISCHARGE VIA WATERCOURSE
THERE ARE NO EXISTING WATERCOURSES IN THE VICINITY OF THE SITE. ON THIS BASIS, IT IS CONSIDERED NOT FEASIBLE TO DISCHARGE THE SURFACE WATER RUNOFF FROM THE PROPOSED DEVELOPMENT TO AN EXISTING WATERCOURSE.

SURFACE WATER DISCHARGE TO EXISTING UU SEWER
IT IS PROPOSED THAT SURFACE WATER WILL DISCHARGE TO THE EXISTING PUBLIC COMBINED SEWER WITHIN WINDERMERE CLOSE.
THE DRAINAGE STRATEGY PUT FORWARD IN THIS DOCUMENT IS BASED ON THE ASSUMPTION THAT SURFACE WATER DISCHARGE IS ALLOWED TO PASS INTO THE EXISTING PUBLIC COMBINED SEWER WITHIN WINDERMERE CLOSE AT A RESTRICTED RATE OF 5 l/sec

Rev.	Amendment	Date	By	Chkd
P01	FRA ISSUE	11.07.19	RH	KPT

Project
WINDERMERE CLOSE
OPENSHAW

Client
ECO-RES LLP

Title
DRAINAGE STRATEGY
PLAN

WML Job No.	Drawn	Checked	Date	Scale
8755G	RH	KPT	JULY 2019	1:200 @ A2

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Drawing No.

Project	Originator	Volume	Level	Type	Role	Number	Rev
8755G	WML	00	XX	DR	S	0001	P1