

Manchester College: Phase 2 SW Drainage	Date: 08/03/2023		
	Designed by: WJO	Checked by: VB	Approved By: VB
Report Details: Type: Junctions Summary Storm Phase: Storm	Company Address: AECOM 1 New York Street Manchester		

AECOM



Sim Criteria FSR: 100 years: Increase Rainfall (%): +30: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SRWP1	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter		28.575	28.921	0.346	253.5			251.8	110.677	Surcharged
S1A	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	29.973	28.200	28.539	0.339	251.8	0.863	0.000	250.4	110.681	OK
S6	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.852	26.718	28.171	1.453	82.9	3.699	0.000	82.0	482.832	Surcharged
G1	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	29.010	28.260	28.304	0.044	10.1	0.007	0.000	10.0	4.407	OK
S2	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.210	27.720	28.172	0.452	2.0	0.512	0.000	2.0	11.306	Surcharged
DUMMY (2)	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.420	27.707	28.172	0.465	2.9	0.008	0.000	2.9	16.673	Surcharged
DUMMY (1)	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.456	27.670	28.172	0.502	5.5	0.009	0.000	5.5	31.559	Surcharged
G3	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	29.360	28.610	28.644	0.033	13.3	0.005	0.000	13.3	5.799	OK
DUMMY	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.697	27.607	28.172	0.565	9.7	0.010	0.000	9.7	55.387	Surcharged
G5	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	29.623	28.873	28.908	0.034	21.3	0.005	0.000	21.2	9.281	OK
S3	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.850	27.550	28.172	0.622	9.7	0.704	0.000	9.8	55.373	Surcharged
S4	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.844	27.218	28.172	0.954	17.3	0.607	0.000	16.9	97.854	Surcharged
G9	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	29.725	28.975	29.034	0.059	20.2	0.017	0.000	20.1	8.820	OK
P2-S5	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.821	27.509	28.172	0.663	13.7	1.171	0.000	13.7	77.973	Surcharged
G10	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	29.701	28.951	28.999	0.048	18.1	0.008	0.000	18.0	7.886	OK
S7	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.117	26.533	28.171	1.638	15.1	5.674	0.000	13.1	297.575	Surcharged
DUMMY (3)	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.920	26.448	28.171	1.723	13.5	0.488	0.000	12.8	300.840	Surcharged
G14	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	29.890	29.010	29.037	0.027	10.6	0.004	0.000	10.6	4.641	OK
S8(FC)	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.936	26.391	28.170	1.779	13.5	6.164	0.000	13.5	324.126	Surcharged

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G15	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	29.89 0	29.01 0	29.029	0.019	5.8	0.003	0.000	5.8	2.552	OK
HEE-CH2	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	34.35 2	34.11 7	34.184	0.067	7.4	0.005	0.000	7.4	3.246	Flood Risk
HEE-S1	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	34.41 7	33.81 2	33.972	0.160	8.9	0.025	0.000	8.4	3.933	Surcharged
HEE-CH1	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	35.05 0	34.35 0	34.367	0.017	1.1	0.001	0.000	1.0	0.465	OK
HEE-S2	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	34.40 0	33.72 6	33.823	0.097	8.4	0.015	0.000	8.0	3.931	OK
PH1-CH1	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	33.82 0	33.54 0	33.596	0.056	9.6	0.001	0.000	9.6	4.626	Flood Risk
PH1-CH2	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	33.08 3	32.80 3	32.864	0.061	11.2	0.001	0.000	11.2	5.323	Flood Risk
PH1-CH3	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	32.40 8	32.12 8	32.192	0.064	12.2	0.001	0.000	12.1	5.787	Flood Risk
PH1-CH4	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	31.70 8	31.42 8	31.492	0.064	13.2	0.001	0.000	13.1	6.251	Flood Risk
PH1-CH5	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	30.93 8	30.65 8	30.725	0.067	14.2	0.001	0.000	14.0	6.715	Flood Risk
G16	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	30.15 2	29.27 2	29.320	0.048	15.1	0.003	0.000	15.0	7.178	OK
S9	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	29.93 7	28.06 9	28.181	0.112	19.8	0.097	0.000	19.5	9.258	OK
G17	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	29.88 0	29.00 0	29.027	0.027	4.8	0.002	0.000	4.8	2.086	OK
S10	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.97 5	27.95 1	28.170	0.219	4.2	0.190	0.000	4.2	23.904	OK
UU-C2	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.93 7	23.35 3	23.434	0.081	13.5	0.144	0.000	13.5	323.791	OK
UU Outfall	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.60 0	23.30 7	23.385	0.078	13.5	0.000	0.000	13.5	323.791	OK
P2-S1	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	29.97 6	28.05 1	28.394	0.343	250.4	0.607	0.000	248.5	110.671	OK
P2-S2(AB)	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	29.90 0	27.92 0	28.197	0.277	342.5	0.490	0.000	340.0	151.776	OK
P2-S3	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.78 5	27.25 0	28.172	0.922	68.4	1.628	0.000	66.3	388.188	Surcharged
SRWP2	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter		28.57 5	28.648	0.073	94.1			93.9	41.077	OK
P2-S4	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	29.82 2	28.12 2	28.172	0.050	4.0	0.071	0.000	4.0	22.623	OK
G2	Sim Criteria FSR: 100 years: +30 %: 15 mins: Winter	29.18 3	28.43 3	28.455	0.022	4.8	0.003	0.000	4.8	2.087	OK

NOTE:
HEE-CH
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THE 0.3m
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RISK
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THESE
CHANNELS
IS NOT
REPRESEN-
TATIVE OF
TRUE
FLOOD
RISK.

Manchester College: Phase 2 SW Drainage	Date: 08/03/2023		
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AECOM



Sim Criteria FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank
By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Tank	Sim Criteria FSR: 1 years: +0 %: 120 mins: Winter	26.840	26.840	0.215	0.215	34.5	46.569	0.000	0.000	21.9	95.947	21	86.587

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Status

OK

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AECOM



Sim Criteria FSR: 30 years: Increase Rainfall (%): +30: Critical Storm Per Item:
Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Tank	Sim Criteria FSR: 30 years: +30 %: 180 mins: Winter	27.737	27.737	1.112	1.112	79.2	240.945	0.000	0.000	16.0	205.803	199	30.602

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Status

OK

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Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Tank	Sim Criteria FSR: 100 years: +30 %: 240 mins: Winter	28.171	28.171	1.546	1.546	82.0	334.937	0.000	0.000	14.9	300.975	292	3.531

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Status

OK

A.7 APPENDIX G – UU Surface Water Discharge Approval

Sellars, Kevin

From: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Sent: 03 December 2019 13:32
To: Sellars, Kevin
Cc: Wastewater Developer Services
Subject: FW: : Manchester College City Centre Campus - Drainage Pre-development submission 4200026310
Attachments: 53705_UG1 A0.pdf; 53705_UG2 A0.pdf; Manchester College - existing discharge rate to UU sewer.pdf

Good Afternoon Kevin,

Thank you for providing the details on the existing drainage.

Considering the private surface water sewer showing on the sewer records (which we discussed previously) connects into the combined, I am happy with the proposal to utilise the existing connection point to the 600mm combined sewer in Great Ducie Street for surface water.

However, I would like to discuss the surface water rate further.

The DEFRA non-statutory technical standards for sustainable drainage systems (section S3) states for previously developed developments, the peak runoff rate from the development must be as reasonably close to the greenfield runoff rate.

Please also refer to the CIRIA SuDS Manual 2015 chapter 24.5, where it states the preferred position should be to aspire to meet greenfield runoff rates. Later it suggests that where the existing drainage system is not in reasonable working order, greenfield rates should be used.

From the existing drainage survey drawing provided, the majority of the drainage does not appear to be in reasonable working order (lots of blockages and "unable to survey" notes).

We would therefore request runoff rates are restricted to 15 l/s (calculated using modified rational method for ~0.15ha with a 50% betterment, and adding on 5 l/s greenfield rates for the rest of the site), though please note the Lead Local Flood Authority will need to be consulted.

Kind regards,

Tom

If you have received a great service today why not tell us?

Visit: unitedutilities.com/wow

Thomas Bethell
Assistant Developer Engineer
Developer Services & Metering (Wastewater)
Customer Services
United Utilities
01925 679 308

A.8 APPENDIX H – Foul Discharge Rate Approval

From: Bethell, Thomas <Thomas.Bethell@uuplc.co.uk>

Sent: 10 June 2019 10:25

To: Sellers, Kevin <kevin.sellers@aecom.com>

Cc: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>

Subject: FW: Manchester College City Centre Campus - Drainage Pre-development submission 4200026310

Dear Kevin,

Our reference for this pre-development enquiry: 4200026310

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

Foul

Foul will be allowed to drain to the public combined sewer network at an unrestricted rate, and at any convenient point.

Surface Water

In order to follow the drainage hierarchy outlined in Building Regulations part H3 and National Planning Practice Guidance (NPPG), surface water should be drained via infiltration systems/soakaways wherever possible. Are you able to provide ground investigation reports to see the feasibility of infiltration? Or if there is insufficient space for a soakaway, could you provide a soakaway constraints plan?

If infiltration is determined to be infeasible our sewer records are showing a private surface water sewer within the car park just north of the site. Have any investigations been carried out with regards to where this connects to / the feasibility of connecting to this pipe? It is possible that this surface water pipe eventually goes on to discharge to the watercourse to the west of the site. If this is the case surface water should be connected here in order to attempt to the drainage hierarchy.

General Information:

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

Connection Application

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

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

Many thanks and kind regards,

Tom

If you have received a great service today why not tell us?

Visit: unitedutilities.com/wow

Thomas Bethell

Assistant Developer Engineer

Developer Services & Metering (Wastewater)

United Utilities

01925 679 308

Surface water
correspondence
superseded by
Appendix G

A.9 APPENDIX I – Soakaway Plan

KEY

PHASE 2 BOUNDARY

OWNERSHIP BOUNDARY

SCHEME EXTENTS

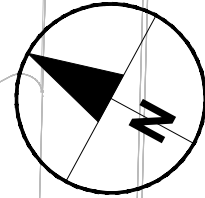
PHASE 1

PHASE 2

FUTURE EXTENSION TO BUILDING

SOAKAWAY EXCLUSION ZONE TO DIGEST 365

NEIGHBOURING DEVELOPMENT



AECOM

PROJECT

MANCHESTER
COLLEGE
PHASE 2

CLIENT

THE MANCHESTER
COLLEGE

CONSULTANT

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www.aecom.com

NOTES

1. ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS NOTED OTHERWISE.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER SCHEME DRAWINGS AND DOCUMENTS.
3. THIS DRAWING IS TO BE USED FOR THE STATED PURPOSE OF ISSUE ONLY AND MUST NOT BE USED FOR ANY OTHER PURPOSE THAN THAT INDICATED.
4. ONLY WRITTEN DIMENSIONS SHALL BE USED. CRITICAL DIMENSIONS AND LEVELS SHALL BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO WORK COMMENCEMENT.
5. ANY DISCREPANCIES IN DIMENSIONS OR DETAILS ON OR BETWEEN THESE DRAWINGS SHALL BE DRAWN TO THE ATTENTION OF THE PROJECT MANAGER FOR CLARIFICATION.
6. THE PHASE 2 DESIGN IS HEAVILY LINKED TO THAT OF THE PHASE 1 AND WIDER MASTERPLAN DESIGN. ASSUMPTIONS THAT THE PHASE 1 DESIGN HAS BEEN CONSTRUCTED AS PER THE DESIGNS. A THOROUGH INVESTIGATION INTO THE AS-BUILT'S STATUS FOR THE PHASE 1 DESIGN WILL BE UNDERTAKEN DUE TO THE REQUIREMENT FOR THE PHASE 2 DESIGN TO UTILISE IN MANY AREAS THE SAME SYSTEM.

ISSUE/REVISION

P1	10/03/2023	FOR PLANNING	NM	WJQ	VB
I/R	DATE	DESCRIPTION	BY	CK	AP

SUITABILITY

S2 - Suitable for information

PROJECT NUMBER

60594458

SHEET TITLE

THE MANCHESTER COLLEGE
PHASE 2
SOAKAWAY EXCLUSION PLAN

SHEET NUMBER

60594458-ACM-XXX-DR-CE-0005

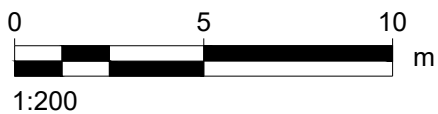
SCALE

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REVISION

P01

THIRD PARTY INFORMATION	ISSUED BY	REFERENCE	DATE RECEIVED	THIRD PARTY INFORMATION	ISSUED BY	REFERENCE	DATE RECEIVED
Third Party Information	Issued By	Reference	--/------	Third Party Information	Issued By	Reference	--/------
Third Party Information	Issued By	Reference	--/------	Third Party Information	Issued By	Reference	--/------



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