

THINK URBAN DESIGN		Page 1
QUEST HOUSE St Mellons Business Park CF3 0EY		
Date 29/09/2026 16:06 File SW Purton 3.MDX	Designed by Leigh.Fotiadis Checked by	
Innovyze	Network 2019.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model	
Return Period (years)	100
FEH Rainfall Version	2013
Site Location GB 407774 187455 SU 07774 87455	
Data Type	Point
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	15
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	1.000
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.368	4-8	0.454	8-12	0.057	12-16	0.057	16-20	0.021

Total Area Contributing (ha) = 0.955

Total Pipe Volume (m³) = 76.792

Network Design Table for Storm

- Indicates pipe length does not match coordinates

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	13.085	0.300	43.6	0.078	15.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	15.00	137.000	0.078	0.0	0.0	0.0	1.99	79.0	14.1

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<u>Network Design Table for Storm</u>											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.001	20.477	0.280	73.1	0.040	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.002	16.504	0.050	330.1	0.008	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.003	45.980	0.220	209.0	0.102	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.004	9.238	0.030	307.9	0.070	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.005	9.458	0.090	105.1	0.027	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.006	19.092	0.040	477.3	0.027	0.00	0.0	0.600	o	525	Pipe/Conduit	
S2.000	11.931	0.760	15.7	0.010	15.00	0.0	0.600	o	225	Pipe/Conduit	
S1.007	13.329	0.030	444.3	0.060	0.00	0.0	0.600	o	525	Pipe/Conduit	
S1.008	12.767	0.280	45.6	0.060	0.00	0.0	0.600	o	525	Pipe/Conduit	
S1.009	40.550	1.100	36.9	0.004	0.00	0.0	0.600	o	525	Pipe/Conduit	
S1.010	31.144	0.640	48.7	0.141	0.00	0.0	0.600	o	525	Pipe/Conduit	
S1.011	27.483	0.050	549.7	0.058	0.00	0.0	0.600	o	675	Pipe/Conduit	
S1.012	18.580	0.390	47.6	0.032	0.00	0.0	0.600	o	675	Pipe/Conduit	
S3.000	15.224	0.170	89.6	0.066	15.00	0.0	0.600	o	225	Pipe/Conduit	
S3.001	6.246	0.400	15.6	0.033	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.013	27.577	0.015	1838.5	0.004	0.00	0.0	0.600	o	675	Pipe/Conduit	
S4.000	18.467	0.150	123.1	0.034	15.00	0.0	0.600	o	225	Pipe/Conduit	
<u>Network Results Table</u>											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
S1.001	50.00	15.00	136.700	0.118		0.0	0.0	0.0	1.53	60.9	21.3
S1.002	50.00	15.00	136.420	0.126		0.0	0.0	0.0	0.99	109.5	22.7
S1.003	50.00	15.00	136.370	0.228		0.0	0.0	0.0	1.25	138.0	41.2
S1.004	50.00	15.00	136.150	0.298		0.0	0.0	0.0	1.15	183.4	53.8
S1.005	50.00	15.00	136.120	0.325		0.0	0.0	0.0	1.98	315.4	58.7
S1.006	50.00	15.00	136.030	0.352		0.0	0.0	0.0	1.02	220.5	63.6
S2.000	50.00	15.00	136.750	0.010		0.0	0.0	0.0	3.32	132.0	1.8
S1.007	50.00	15.00	135.990	0.422		0.0	0.0	0.0	1.06	228.6	76.2
S1.008	50.00	15.00	135.960	0.482		0.0	0.0	0.0	3.32	719.5	87.0
S1.009	50.00	15.00	135.680	0.486		0.0	0.0	0.0	3.70	800.5	87.7
S1.010	50.00	15.00	134.580	0.627		0.0	0.0	0.0	3.22	696.3	113.2
S1.011	50.00	15.00	133.940	0.685		0.0	0.0	0.0	1.11	397.5	123.7
S1.012	50.00	15.00	133.890	0.717		0.0	0.0	0.0	3.80	1361.0	129.5
S3.000	50.00	15.00	134.070	0.066		0.0	0.0	0.0	1.38	55.0	11.9
S3.001	50.00	15.00	133.900	0.099		0.0	0.0	0.0	4.00	282.6	17.9
S1.013	50.00	15.00	133.500	0.820		0.0	0.0	0.0	0.60	215.4	148.1
S4.000	50.00	15.00	135.350	0.034		0.0	0.0	0.0	1.18	46.8	6.1
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Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S1	138.260	1.260	Open Manhole	1200	S1.000	137.000	225				
S2	138.640	1.940	Open Manhole	1200	S1.001	136.700	225	S1.000	136.700	225	
S3	139.660	3.240	Open Manhole	1350	S1.002	136.420	375	S1.001	136.420	225	
S4	140.430	4.060	Open Manhole	1350	S1.003	136.370	375	S1.002	136.370	375	
S5	139.890	3.740	Open Manhole	1350	S1.004	136.150	450	S1.003	136.150	375	
S6	139.630	3.510	Open Manhole	1350	S1.005	136.120	450	S1.004	136.120	450	
S7	139.260	3.230	Open Manhole	1500	S1.006	136.030	525	S1.005	136.030	450	
S8a	138.250	1.500	Open Manhole	1200	S2.000	136.750	225				
S8	138.350	2.360	Open Manhole	1500	S1.007	135.990	525	S1.006	135.990	525	
								S2.000	135.990	225	
S9	137.820	1.860	Open Manhole	1500	S1.008	135.960	525	S1.007	135.960	525	
S10	137.380	1.700	Open Manhole	1500	S1.009	135.680	525	S1.008	135.680	525	
S11	136.480	1.900	Open Manhole	1500	S1.010	134.580	525	S1.009	134.580	525	
S12	135.880	1.940	Open Manhole	1500	S1.011	133.940	675	S1.010	133.940	525	
S13	136.090	2.200	Open Manhole	1500	S1.012	133.890	675	S1.011	133.890	675	
S16	136.430	2.360	Open Manhole	1200	S3.000	134.070	225				
S17	136.290	2.390	Open Manhole	1200	S3.001	133.900	300	S3.000	133.900	225	
S14	136.200	2.700	Open Manhole	1500	S1.013	133.500	675	S1.012	133.500	675	
								S3.001	133.500	300	
S18	136.650	1.300	Open Manhole	1200	S4.000	135.350	225				
S19	136.440	1.240	Open Manhole	1200	S4.001	135.200	225	S4.000	135.200	225	
S20	136.180	1.400	Open Manhole	1200	S4.002	134.780	225	S4.001	134.780	225	
S24	136.230	1.430	Open Manhole	1200	S5.000	134.800	225				
S21	136.040	1.610	Open Manhole	1350	S4.003	134.430	375	S4.002	134.430	225	
								S5.000	134.430	225	
S22	136.200	1.800	Open Manhole	1350	S4.004	134.400	375	S4.003	134.400	375	
S24	135.950	2.651	Open Manhole	3000	S1.014	133.299	2	S1.013	133.485	675	261
								S4.004	134.370	375	846
S	135.950	2.652	Open Manhole	2		OUTFALL		S1.014	133.298	2	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S1	407760.854	187568.821	407760.854	187568.821	Required	

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Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S2	407763.385	187555.984	407763.385	187555.984	Required	
S3	407766.844	187535.801	407766.844	187535.801	Required	
S4	407766.319	187519.305	407766.319	187519.305	Required	
S5	407760.951	187473.639	407760.951	187473.639	Required	
S6	407755.068	187466.516	407755.068	187466.516	Required	
S7	407745.611	187466.610	407745.611	187466.610	Required	
S8a	407718.639	187478.834	407718.639	187478.834	Required	
S8	407726.856	187470.184	407726.856	187470.184	Required	
S9	407721.265	187458.086	407721.265	187458.086	Required	
S10	407717.662	187445.837	407717.662	187445.837	Required	
S11	407714.861	187405.384	407714.861	187405.384	Required	
S12	407713.404	187374.274	407713.404	187374.274	Required	
S13	407723.382	187348.667	407723.382	187348.667	Required	
S16	407737.226	187318.796	407737.226	187318.796	Required	
S17	407731.235	187332.791	407731.235	187332.791	Required	

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<u>Manhole Schedules for Storm</u> <table><tr><th>MH Name</th><th>Manhole Easting (m)</th><th>Manhole Northing (m)</th><th>Intersection Easting (m)</th><th>Intersection Northing (m)</th><th>Manhole Access</th><th>Layout (North)</th></tr><tr><td>S14</td><td>407725.545</td><td>187330.213</td><td>407725.545</td><td>187330.213</td><td>Required</td><td></td></tr><tr><td>S18</td><td>407746.567</td><td>187224.272</td><td>407746.567</td><td>187224.272</td><td>Required</td><td></td></tr><tr><td>S19</td><td>407728.255</td><td>187226.664</td><td>407728.255</td><td>187226.664</td><td>Required</td><td></td></tr><tr><td>S20</td><td>407727.777</td><td>187245.055</td><td>407727.777</td><td>187245.055</td><td>Required</td><td></td></tr><tr><td>S24</td><td>407737.451</td><td>187272.616</td><td>407737.451</td><td>187272.616</td><td>Required</td><td></td></tr><tr><td>S21</td><td>407732.481</td><td>187258.450</td><td>407732.481</td><td>187258.450</td><td>Required</td><td></td></tr><tr><td>S22</td><td>407725.571</td><td>187260.842</td><td>407725.571</td><td>187260.842</td><td>Required</td><td></td></tr><tr><td>S24</td><td>407723.629</td><td>187302.703</td><td>407723.629</td><td>187302.703</td><td>Required</td><td></td></tr><tr><td>S</td><td>407716.036</td><td>187302.628</td><td></td><td></td><td>No Entry</td><td></td></tr></table>							MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)	S14	407725.545	187330.213	407725.545	187330.213	Required		S18	407746.567	187224.272	407746.567	187224.272	Required		S19	407728.255	187226.664	407728.255	187226.664	Required		S20	407727.777	187245.055	407727.777	187245.055	Required		S24	407737.451	187272.616	407737.451	187272.616	Required		S21	407732.481	187258.450	407732.481	187258.450	Required		S22	407725.571	187260.842	407725.571	187260.842	Required		S24	407723.629	187302.703	407723.629	187302.703	Required		S	407716.036	187302.628			No Entry	
MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)																																																																						
S14	407725.545	187330.213	407725.545	187330.213	Required																																																																							
S18	407746.567	187224.272	407746.567	187224.272	Required																																																																							
S19	407728.255	187226.664	407728.255	187226.664	Required																																																																							
S20	407727.777	187245.055	407727.777	187245.055	Required																																																																							
S24	407737.451	187272.616	407737.451	187272.616	Required																																																																							
S21	407732.481	187258.450	407732.481	187258.450	Required																																																																							
S22	407725.571	187260.842	407725.571	187260.842	Required																																																																							
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Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.078	0.078	0.078
1.001	-	-	100	0.040	0.040	0.040
1.002	-	-	100	0.008	0.008	0.008
1.003	-	-	100	0.102	0.102	0.102
1.004	-	-	100	0.070	0.070	0.070
1.005	-	-	100	0.027	0.027	0.027
1.006	-	-	100	0.027	0.027	0.027
2.000	-	-	100	0.010	0.010	0.010
1.007	-	-	100	0.060	0.060	0.060
1.008	-	-	100	0.060	0.060	0.060
1.009	-	-	100	0.004	0.004	0.004
1.010	-	-	100	0.141	0.141	0.141
1.011	-	-	100	0.058	0.058	0.058
1.012	-	-	100	0.032	0.032	0.032
3.000	-	-	100	0.066	0.066	0.066
3.001	-	-	100	0.033	0.033	0.033
1.013	-	-	100	0.004	0.004	0.004
4.000	-	-	100	0.034	0.034	0.034
4.001	-	-	100	0.040	0.040	0.040
4.002	-	-	100	0.021	0.021	0.021
5.000	-	-	100	0.024	0.024	0.024
4.003	-	-	100	0.016	0.016	0.016
4.004	-	-	100	0.000	0.000	0.000
1.014	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.955	0.955	0.955

Surcharged Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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S1.014 S 135.950 133.298 133.299 2 0

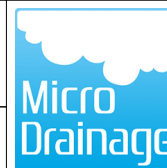
Datum (m) 0.000 Offset (mins) 0

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1	10.000	10	10.000	19	10.000	28	10.000	37	10.000	46	10.000
2	10.000	11	10.000	20	10.000	29	10.000	38	10.000	47	10.000
3	10.000	12	10.000	21	10.000	30	10.000	39	10.000	48	10.000
4	10.000	13	10.000	22	10.000	31	10.000	40	10.000	49	10.000
5	10.000	14	10.000	23	10.000	32	10.000	41	10.000	50	10.000
6	10.000	15	10.000	24	10.000	33	10.000	42	10.000	51	10.000
7	10.000	16	10.000	25	10.000	34	10.000	43	10.000	52	10.000
8	10.000	17	10.000	26	10.000	35	10.000	44	10.000	53	10.000
9	10.000	18	10.000	27	10.000	36	10.000	45	10.000	54	10.000

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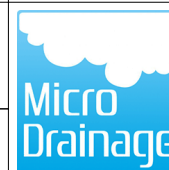
Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
55	10.000	105	10.000	155	10.000	205	10.000	255	10.000	305	10.000
56	10.000	106	10.000	156	10.000	206	10.000	256	10.000	306	10.000
57	10.000	107	10.000	157	10.000	207	10.000	257	10.000	307	10.000
58	10.000	108	10.000	158	10.000	208	10.000	258	10.000	308	10.000
59	10.000	109	10.000	159	10.000	209	10.000	259	10.000	309	10.000
60	10.000	110	10.000	160	10.000	210	10.000	260	10.000	310	10.000
61	10.000	111	10.000	161	10.000	211	10.000	261	10.000	311	10.000
62	10.000	112	10.000	162	10.000	212	10.000	262	10.000	312	10.000
63	10.000	113	10.000	163	10.000	213	10.000	263	10.000	313	10.000
64	10.000	114	10.000	164	10.000	214	10.000	264	10.000	314	10.000
65	10.000	115	10.000	165	10.000	215	10.000	265	10.000	315	10.000
66	10.000	116	10.000	166	10.000	216	10.000	266	10.000	316	10.000
67	10.000	117	10.000	167	10.000	217	10.000	267	10.000	317	10.000
68	10.000	118	10.000	168	10.000	218	10.000	268	10.000	318	10.000
69	10.000	119	10.000	169	10.000	219	10.000	269	10.000	319	10.000
70	10.000	120	10.000	170	10.000	220	10.000	270	10.000	320	10.000
71	10.000	121	10.000	171	10.000	221	10.000	271	10.000	321	10.000
72	10.000	122	10.000	172	10.000	222	10.000	272	10.000	322	10.000
73	10.000	123	10.000	173	10.000	223	10.000	273	10.000	323	10.000
74	10.000	124	10.000	174	10.000	224	10.000	274	10.000	324	10.000
75	10.000	125	10.000	175	10.000	225	10.000	275	10.000	325	10.000
76	10.000	126	10.000	176	10.000	226	10.000	276	10.000	326	10.000
77	10.000	127	10.000	177	10.000	227	10.000	277	10.000	327	10.000
78	10.000	128	10.000	178	10.000	228	10.000	278	10.000	328	10.000
79	10.000	129	10.000	179	10.000	229	10.000	279	10.000	329	10.000
80	10.000	130	10.000	180	10.000	230	10.000	280	10.000	330	10.000
81	10.000	131	10.000	181	10.000	231	10.000	281	10.000	331	10.000
82	10.000	132	10.000	182	10.000	232	10.000	282	10.000	332	10.000
83	10.000	133	10.000	183	10.000	233	10.000	283	10.000	333	10.000
84	10.000	134	10.000	184	10.000	234	10.000	284	10.000	334	10.000
85	10.000	135	10.000	185	10.000	235	10.000	285	10.000	335	10.000
86	10.000	136	10.000	186	10.000	236	10.000	286	10.000	336	10.000
87	10.000	137	10.000	187	10.000	237	10.000	287	10.000	337	10.000
88	10.000	138	10.000	188	10.000	238	10.000	288	10.000	338	10.

QUEST HOUSE

St Mellons Business Park
CF3 0EY

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Date 29/09/2026 16:06
File SW Purton 3.MDX
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Network 2019.1

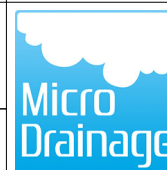
Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
355	10.000	405	10.000	455	10.000	505	10.000	555	10.000	605	10.000
356	10.000	406	10.000	456	10.000	506	10.000	556	10.000	606	10.000
357	10.000	407	10.000	457	10.000	507	10.000	557	10.000	607	10.000
358	10.000	408	10.000	458	10.000	508	10.000	558	10.000	608	10.000
359	10.000	409	10.000	459	10.000	509	10.000	559	10.000	609	10.000
360	10.000	410	10.000	460	10.000	510	10.000	560	10.000	610	10.000
361	10.000	411	10.000	461	10.000	511	10.000	561	10.000	611	10.000
362	10.000	412	10.000	462	10.000	512	10.000	562	10.000	612	10.000
363	10.000	413	10.000	463	10.000	513	10.000	563	10.000	613	10.000
364	10.000	414	10.000	464	10.000	514	10.000	564	10.000	614	10.000
365	10.000	415	10.000	465	10.000	515	10.000	565	10.000	615	10.000
366	10.000	416	10.000	466	10.000	516	10.000	566	10.000	616	10.000
367	10.000	417	10.000	467	10.000	517	10.000	567	10.000	617	10.000
368	10.000	418	10.000	468	10.000	518	10.000	568	10.000	618	10.000
369	10.000	419	10.000	469	10.000	519	10.000	569	10.000	619	10.000
370	10.000	420	10.000	470	10.000	520	10.000	570	10.000	620	10.000
371	10.000	421	10.000	471	10.000	521	10.000	571	10.000	621	10.000
372	10.000	422	10.000	472	10.000	522	10.000	572	10.000	622	10.000
373	10.000	423	10.000	473	10.000	523	10.000	573	10.000	623	10.000
374	10.000	424	10.000	474	10.000	524	10.000	574	10.000	624	10.000
375	10.000	425	10.000	475	10.000	525	10.000	575	10.000	625	10.000
376	10.000	426	10.000	476	10.000	526	10.000	576	10.000	626	10.000
377	10.000	427	10.000	477	10.000	527	10.000	577	10.000	627	10.000
378	10.000	428	10.000	478	10.000	528	10.000	578	10.000	628	10.000
379	10.000	429	10.000	479	10.000	529	10.000	579	10.000	629	10.000
380	10.000	430	10.000	480	10.000	530	10.000	580	10.000	630	10.000
381	10.000	431	10.000	481	10.000	531	10.000	581	10.000	631	10.000
382	10.000	432	10.000	482	10.000	532	10.000	582	10.000	632	10.000
383	10.000	433	10.000	483	10.000	533	10.000	583	10.000	633	10.000
384	10.000	434	10.000	484	10.000	534	10.000	584	10.000	634	10.000
385	10.000	435	10.000	485	10.000	535	10.000	585	10.000	635	10.000
386	10.000	436	10.000	486	10.000	536	10.000	586	10.000	636	10.000
387	10.000	437	10.000	487	10.000	537	10.000	587	10.000	637	10.000
388	10.000	438	10.000	488	10.000	538	10.000	588	10.000	638	10.000
389	10.000	439	10.000	489	10.000	539	10.000	589	10.000	639	10.000
390	10.000	440	10.000	490	10.000	540	10.000	590	10.000	640	10.000
391	10.000	441	10.000	491	10.000	541	10.000	591	10.000	641	10.000
392	10.000	442	10.000	492	10.000	542	10.000	592	10.000	642	10.000
393	10.000	443	10.000	493	10.000	543	10.000	593	10.000	643	10.000
394	10.000	444	10.000	494	10.000	544	10.000	594	10.000	644	10.000
395	10.000	445	10.000	495	10.000	545	10.000	595	10.000	645	10.000
396	10.000	446	10.000	496	10.000	546	10.000	596	10.000	646	10.000
397	10.000	447	10.000	497	10.000	547	10.000	597	10.000	647	10.000
398	10.000	448	10.000	498	10.000	548	10.000	598	10.000	648	10.000
399	10.000	449	10.000	499	10.000	549	10.000	599	10.000	649	10.000
400	10.000	450	10.000	500	10.000	550	10.000	600	10.000	650	10.000
401	10.000	451	10.000	501	10.000	551	10.000	601	10.000	651	10.000
402	10.000	452	10.000	502	10.000	552	10.000	602	10.000	652	10.000
403	10.000	453	10.000	503	10.000	553	10.000	603	10.000	653	10.000
404	10.000	454	10.000	504	10.000	554	10.000	604	10.000	654	10.000

St Mellons Business Park
CF3 0EY

Date 29/09/2026 16:06
File SW Purton 3.MDX

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Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
655	10.000	705	10.000	755	10.000	805	10.000	855	10.000	905	10.000
656	10.000	706	10.000	756	10.000	806	10.000	856	10.000	906	10.000
657	10.000	707	10.000	757	10.000	807	10.000	857	10.000	907	10.000
658	10.000	708	10.000	758	10.000	808	10.000	858	10.000	908	10.000
659	10.000	709	10.000	759	10.000	809	10.000	859	10.000	909	10.000
660	10.000	710	10.000	760	10.000	810	10.000	860	10.000	910	10.000
661	10.000	711	10.000	761	10.000	811	10.000	861	10.000	911	10.000
662	10.000	712	10.000	762	10.000	812	10.000	862	10.000	912	10.000
663	10.000	713	10.000	763	10.000	813	10.000	863	10.000	913	10.000
664	10.000	714	10.000	764	10.000	814	10.000	864	10.000	914	10.000
665	10.000	715	10.000	765	10.000	815	10.000	865	10.000	915	10.000
666	10.000	716	10.000	766	10.000	816	10.000	866	10.000	916	10.000
667	10.000	717	10.000	767	10.000	817	10.000	867	10.000	917	10.000
668	10.000	718	10.000	768	10.000	818	10.000	868	10.000	918	10.000
669	10.000	719	10.000	769	10.000	819	10.000	869	10.000	919	10.000
670	10.000	720	10.000	770	10.000	820	10.000	870	10.000	920	10.000
671	10.000	721	10.000	771	10.000	821	10.000	871	10.000	921	10.000
672	10.000	722	10.000	772	10.000	822	10.000	872	10.000	922	10.000
673	10.000	723	10.000	773	10.000	823	10.000	873	10.000	923	10.000
674	10.000	724	10.000	774	10.000	824	10.000	874	10.000	924	10.000
675	10.000	725	10.000	775	10.000	825	10.000	875	10.000	925	10.000
676	10.000	726	10.000	776	10.000	826	10.000	876	10.000	926	10.000
677	10.000	727	10.000	777	10.000	827	10.000	877	10.000	927	10.000
678	10.000	728	10.000	778	10.000	828	10.000	878	10.000	928	10.000
679	10.000	729	10.000	779	10.000	829	10.000	879	10.000	929	10.000
680	10.000	730	10.000	780	10.000	830	10.000	880	10.000	930	10.000
681	10.000	731	10.000	781	10.000	831	10.000	881	10.000	931	10.000
682	10.000	732	10.000	782	10.000	832	10.000	882	10.000	932	10.000
683	10.000	733	10.000	783	10.000	833	10.000	883	10.000	933	10.000
684	10.000	734	10.000	784	10.000	834	10.000	884	10.000	934	10.000
685	10.000	735	10.000	785	10.000	835	10.000	885	10.000	935	10.000
686	10.000	736	10.000	786	10.000	836	10.000	886	10.000	936	10.000
687	10.000	737	10.000	787	10.000	837	10.000	887	10.000	937	10.000
688	10.000	738	10.000	788	10.000	838	10.000</				

THINK URBAN DESIGN										Page 11	
QUEST HOUSE St Mellons Business Park CF3 0EY											
Date 29/09/2026 16:06 File SW Purton 3.MDX					Designed by Leigh.Fotiadis Checked by						
Innovyze					Network 2019.1						
<u>Surcharged Outfall Details for Storm</u>											
Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
955	10.000	1005	10.000	1055	10.000	1105	10.000	1155	10.000	1205	10.000
956	10.000	1006	10.000	1056	10.000	1106	10.000	1156	10.000	1206	10.000
957	10.000	1007	10.000	1057	10.000	1107	10.000	1157	10.000	1207	10.000
958	10.000	1008	10.000	1058	10.000	1108	10.000	1158	10.000	1208	10.000
959	10.000	1009	10.000	1059	10.000	1109	10.000	1159	10.000	1209	10.000
960	10.000	1010	10.000	1060	10.000	1110	10.000	1160	10.000	1210	10.000
961	10.000	1011	10.000	1061	10.000	1111	10.000	1161	10.000	1211	10.000
962	10.000	1012	10.000	1062	10.000	1112	10.000	1162	10.000	1212	10.000
963	10.000	1013	10.000	1063	10.000	1113	10.000	1163	10.000	1213	10.000
964	10.000	1014	10.000	1064	10.000	1114	10.000	1164	10.000	1214	10.000
965	10.000	1015	10.000	1065	10.000	1115	10.000	1165	10.000	1215	10.000
966	10.000	1016	10.000	1066	10.000	1116	10.000	1166	10.000	1216	10.000
967	10.000	1017	10.000	1067	10.000	1117	10.000	1167	10.000	1217	10.000
968	10.000	1018	10.000	1068	10.000	1118	10.000	1168	10.000	1218	10.000
969	10.000	1019	10.000	1069	10.000	1119	10.000	1169	10.000	1219	10.000
970	10.000	1020	10.000	1070	10.000	1120	10.000	1170	10.000	1220	10.000
971	10.000	1021	10.000	1071	10.000	1121	10.000	1171	10.000	1221	10.000
972	10.000	1022	10.000	1072	10.000	1122	10.000	1172	10.000	1222	10.000
973	10.000	1023	10.000	1073	10.000	1123	10.000	1173	10.000	1223	10.000
974	10.000	1024	10.000	1074	10.000	1124	10.000	1174	10.000	1224	10.000
975	10.000	1025	10.000	1075	10.000	1125	10.000	1175	10.000	1225	10.000
976	10.000	1026	10.000	1076	10.000	1126	10.000	1176	10.000	1226	10.000
977	10.000	1027	10.000	1077	10.000	1127	10.000	1177	10.000	1227	10.000
978	10.000	1028	10.000	1078	10.000	1128	10.000	1178	10.000	1228	10.000
979	10.000	1029	10.000	1079	10.000	1129	10.000	1179	10.000	1229	10.000
980	10.000	1030	10.000	1080	10.000	1130	10.000	1180	10.000	1230	10.000
981	10.000	1031	10.000	1081	10.000	1131	10.000	1181	10.000	1231	10.000
982	10.000	1032	10.000	1082	10.000	1132	10.000	1182	10.000	1232	10.000
983	10.000	1033	10.000	1083	10.000	1133	10.000	1183	10.000	1233	10.000
984	10.000	1034	10.000	1084	10.000	1134	10.000	1184	10.000	1234	10.000
985	10.000	1035	10.000	1085	10.000	1135	10.000	1185	10.000	1235	10.000
986	10.000	1036	10.000	1086	10.000	1136	10.000	1186	10.000	1236	10.000
987	10.000	1037	10.000	1087	10.000	1137	10.000	1187	10.000	1237	10.000
988	10.000	1038	10.000	1088	10.000	1138	10.000	1188	10.000	1238	10.000
989	10.000	1039	10.000	1089	10.000	1139	10.000	1189	10.000	1239	10.000
990	10.000	1040	10.000	1090	10.000	1140	10.000	1190	10.000	1240	10.000
991	10.000	1041	10.000	1091	10.000	1141	10.000	1191	10.000	1241	10.000
992	10.000	1042	10.000	1092	10.000	1142	10.000	1192	10.000	1242	10.000
993	10.000	1043	10.000	1093	10.000	1143	10.000	1193	10.000	1243	10.000
994	10.000	1044	10.000	1094	10.000	1144	10.000	1194	10.000	1244	10.000
995	10.000	1045	10.000	1095	10.000	1145	10.000	1195	10.000	1245	10.000
996	10.000	1046	10.000	1096	10.000	1146	10.000	1196	10.000	1246	10.000
997	10.000	1047	10.000	1097	10.000	1147	10.000	1197	10.000	1247	10.000
998	10.000	1048	10.000	1098	10.000	1148	10.000	1198	10.000	1248	10.000
999	10.000	1049	10.000	1099	10.000	1149	10.000	1199	10.000	1249	10.000
1000	10.000	1050	10.000	1100	10.000	1150	10.000	1200	10.000	1250	10.000
1001	10.000	1051	10.000	1101	10.000	1151	10.000	1201	10.000	1251	10.000
1002	10.000	1052	10.000	1102	10.000	1152	10.000	1202	10.000	1252	10.000
1003	10.000	1053	10.000	1103	10.000	1153	10.000	1203	10.000	1253	10.000
1004	10.000	1054	10.000	1104	10.000	1154	10.000	1204	10.000	1254	10.000
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THINK URBAN DESIGN								Page 12			
QUEST HOUSE St Mellons Business Park CF3 0EY											
Date 29/09/2026 16:06 File SW Purton 3.MDX											
Designed by Leigh.Fotiadis Checked by											
Innovyze						Network 2019.1					
<u>Surcharged Outfall Details for Storm</u>											
Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1255	10.000	1286	10.000	1317	10.000	1348	10.000	1379	10.000	1410	10.000
1256	10.000	1287	10.000	1318	10.000	1349	10.000	1380	10.000	1411	10.000
1257	10.000	1288	10.000	1319	10.000	1350	10.000	1381	10.000	1412	10.000
1258	10.000	1289	10.000	1320	10.000	1351	10.000	1382	10.000	1413	10.000
1259	10.000	1290	10.000	1321	10.000	1352	10.000	1383	10.000	1414	10.000
1260	10.000	1291	10.000	1322	10.000	1353	10.000	1384	10.000	1415	10.000
1261	10.000	1292	10.000	1323	10.000	1354	10.000	1385	10.000	1416	10.000
1262	10.000	1293	10.000	1324	10.000	1355	10.000	1386	10.000	1417	10.000
1263	10.000	1294	10.000	1325	10.000	1356	10.000	1387	10.000	1418	10.000
1264	10.000	1295	10.000	1326	10.000	1357	10.000	1388	10.000	1419	10.000
1265	10.000	1296	10.000	1327	10.000	1358	10.000	1389	10.000	1420	10.000
1266	10.000	1297	10.000	1328	10.000	1359	10.000	1390	10.000	1421	10.000
1267	10.000	1298	10.000	1329	10.000	1360	10.000	1391	10.000	1422	10.000
1268	10.000	1299	10.000	1330	10.000	1361	10.000	1392	10.000	1423	10.000
1269	10.000	1300	10.000	1331	10.000	1362	10.000	1393	10.000	1424	10.000
1270	10.000	1301	10.000	1332	10.000	1363	10.000	1394	10.000	1425	10.000
1271	10.000	1302	10.000	1333	10.000	1364	10.000	1395	10.000	1426	10.000
1272	10.000	1303	10.000	1334	10.000	1365	10.000	1396	10.000	1427	10.000
1273	10.000	1304	10.000	1335	10.000	1366	10.000	1397	10.000	1428	10.000
1274	10.000	1305	10.000	1336	10.000	1367	10.000	1398	10.000	1429	10.000
1275	10.000	1306	10.000	1337	10.000	1368	10.000	1399	10.000	1430	10.000
1276	10.000	1307	10.000	1338	10.000	1369	10.000	1400	10.000	1431	10.000
1277	10.000	1308	10.000	1339	10.000	1370	10.000	1401	10.000	1432	10.000
1278	10.000	1309	10.000	1340	10.000	1371	10.000	1402	10.000	1433	10.000
1279	10.000	1310	10.000	1341	10.000	1372	10.000	1403	10.000	1434	10.000
1280	10.000	1311	10.000	1342	10.000	1373	10.000	1404	10.000	1435	10.000
1281	10.000	1312	10.000	1343	10.000	1374	10.000	1405	10.000	1436	10.000
1282	10.000	1313	10.000	1344	10.000	1375	10.000	1406	10.000	1437	10.000
1283	10.000	1314	10.000	1345	10.000	1376	10.000	1407	10.000	1438	10.000
1284	10.000	1315	10.000	1346	10.000	1377	10.000	1408	10.000	1439	10.000
1285	10.000	1316	10.000	1347	10.000	1378	10.000	1409	10.000	1440	10.000
<u>Simulation Criteria for Storm</u>											
Volumetric Runoff Coeff 1.000 Additional Flow - % of Total Flow 0.000											
Areal Reduction Factor 1.000 MADD Factor * 10m³/ha Storage 0.000											
Hot Start (mins) 0 Inlet Coefficient 0.800											
Hot Start Level (mm) 0 Flow per Person per Day (l/per/day) 0.000											
Manhole Headloss Coeff (Global) 0.500 Run Time (mins) 60											
Foul Sewage per hectare (l/s) 0.000 Output Interval (mins) 1											
Number of Input Hydrographs 0 Number of Storage Structures 1											
Number of Online Controls 1 Number of Time/Area Diagrams 0											
Number of Offline Controls 0 Number of Real Time Controls 0											
<u>Synthetic Rainfall Details</u>											
Rainfall Model FEH											
Return Period (years) 100											
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THINK URBAN DESIGN		Page 13																										
QUEST HOUSE St Mellons Business Park CF3 0EY																												
Date 29/09/2026 16:06 File SW Purton 3.MDX	Designed by Leigh.Fotiadis Checked by																											
Innovyze Network 2019.1																												
<u>Synthetic Rainfall Details</u> <table> <tr> <td>FEH Rainfall Version</td> <td>1999</td> </tr> <tr> <td>Site Location GB 407774 187455 SU 07774 87455</td> <td></td> </tr> <tr> <td>C (1km)</td> <td>0.000</td> </tr> <tr> <td>D1 (1km)</td> <td>0.000</td> </tr> <tr> <td>D2 (1km)</td> <td>0.000</td> </tr> <tr> <td>D3 (1km)</td> <td>0.000</td> </tr> <tr> <td>E (1km)</td> <td>0.000</td> </tr> <tr> <td>F (1km)</td> <td>0.000</td> </tr> <tr> <td>Summer Storms</td> <td>Yes</td> </tr> <tr> <td>Winter Storms</td> <td>No</td> </tr> <tr> <td>Cv (Summer)</td> <td>1.000</td> </tr> <tr> <td>Cv (Winter)</td> <td>1.000</td> </tr> <tr> <td>Storm Duration (mins)</td> <td>15</td> </tr> </table>			FEH Rainfall Version	1999	Site Location GB 407774 187455 SU 07774 87455		C (1km)	0.000	D1 (1km)	0.000	D2 (1km)	0.000	D3 (1km)	0.000	E (1km)	0.000	F (1km)	0.000	Summer Storms	Yes	Winter Storms	No	Cv (Summer)	1.000	Cv (Winter)	1.000	Storm Duration (mins)	15
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©1982-2019 Innovyze																												

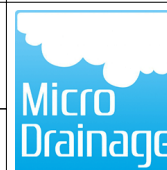
THINK URBAN DESIGN		Page 14
QUEST HOUSE St Mellons Business Park CF3 0EY		
Date 29/09/2026 16:06 File SW Purton 3.MDX	Designed by Leigh.Fotiadis Checked by	
Innovyze	Network 2019.1	
<u>Online Controls for Storm</u> <u>Weir Manhole: S24, DS/PN: S1.014, Volume (m³): 32.2</u> Discharge Coef 0.544 Width (m) 3.000 Invert Level (m) 135.950		
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THINK URBAN DESIGN		Page 15
QUEST HOUSE St Mellons Business Park CF3 0EY		
Date 29/09/2026 16:06 File SW Purton 3.MDX	Designed by Leigh.Fotiadis Checked by	
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St Mellons Business Park
CF3 0EY

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Date 29/09/2026 16:06
File SW Purton 3.MDX
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Network 2019.1

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

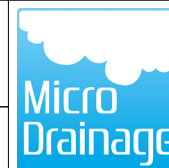
PN	US/MH Name	Water	Surcharged	Flooded	Pipe		Status	Level Exceeded
		Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)		
S1.000	S1	137.090	-0.135	0.000	0.34		23.3	OK
S1.001	S2	136.984	0.059	0.000	0.76		42.2	SURCHARGED
S1.002	S3	136.829	0.034	0.000	0.54		48.5	SURCHARGED
S1.003	S4	136.805	0.060	0.000	0.79		100.4	SURCHARGED
S1.004	S5	136.650	0.050	0.000	1.13		140.1	SURCHARGED
S1.005	S6	136.610	0.040	0.000	0.92		155.3	SURCHARGED
S1.006	S7	136.560	0.005	0.000	1.08		165.0	SURCHARGED
S2.000	S8a	136.774	-0.201	0.000	0.03		3.0	OK
S1.007	S8	136.515	0.000	0.000	1.46		195.3	OK
S1.008	S9	136.248	-0.237	0.000	0.55		223.3	OK
S1.009	S10	135.891	-0.314	0.000	0.32		225.3	OK
S1.010	S11	135.123	0.018	0.000	0.03		16.3	SURCHARGED
S1.011	S12	135.123	0.508	0.000	0.06		17.4	SURCHARGED
S1.012	S13	135.123	0.558	0.000	0.02		18.1	SURCHARGED
S3.000	S16	135.123	0.828	0.000	0.03		1.7	SURCHARGED

QUEST HOUSE

St Mellons Business Park
CF3 0EY

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

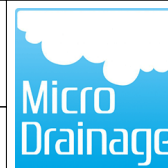
PN	US/MH			Return Period	Climate Change	First (X)		First (Y)	First (Z)	Overflow Act.
	Name	Storm				Surcharge	Flood	Overflow		
S3.001	S17	1440	Winter	30	+30%	2/480	Summer			
S1.013	S14	1440	Winter	30	+30%	2/480	Summer			
S4.000	S18	30	Summer	30	+30%					
S4.001	S19	15	Summer	30	+30%	100/720	Summer			
S4.002	S20	1440	Winter	30	+30%	30/720	Summer			
S5.000	S24	1440	Winter	30	+30%	30/960	Summer			
S4.003	S21	1440	Winter	30	+30%	30/360	Summer			
S4.004	S22	1440	Winter	30	+30%	30/15	Summer			
S1.014	S24	1440	Winter	30	+30%	2/120	Summer			

PN	US/MH Name	Water	Surcharged	Flooded	Pipe		Status	Level Exceeded
		Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)		
S3.001	S17	135.123	0.923	0.000	0.02		2.5	SURCHARGED
S1.013	S14	135.123	0.948	0.000	0.12		20.4	SURCHARGED
S4.000	S18	135.425	-0.150	0.000	0.24		10.2	OK
S4.001	S19	135.312	-0.113	0.000	0.49		34.6	OK
S4.002	S20	135.123	0.118	0.000	0.03		2.5	SURCHARGED
S5.000	S24	135.123	0.098	0.000	0.01		0.6	SURCHARGED
S4.003	S21	135.123	0.318	0.000	0.04		3.5	SURCHARGED
S4.004	S22	135.123	0.348	0.000	0.07		3.4	SURCHARGED
S1.014	S24	135.123	1.224	0.000	0.00		0.0	SURCHARGED

St Mellons Business Park
CF3 0EY

Date 29/09/2026 16:06
File SW Purton 3.MDX

Designed by Leigh.Fotiadis
Checked by



Network 2019.1

100 year Return Period Summary of Critical Results by Maximum Level (Rank
1) for Storm

PN	US/MH Name	Water	Surcharged	Flooded	Pipe		Status	Level Exceeded
		Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Flow (l/s)		
S1.000	S1	137.786	0.561	0.000	0.58	39.8	SURCHARGED	
S1.001	S2	137.729	0.804	0.000	1.15	63.7	SURCHARGED	
S1.002	S3	137.403	0.608	0.000	0.82	73.4	SURCHARGED	
S1.003	S4	137.370	0.625	0.000	1.16	147.4	SURCHARGED	
S1.004	S5	137.045	0.445	0.000	1.67	206.4	SURCHARGED	
S1.005	S6	136.903	0.333	0.000	1.36	229.5	SURCHARGED	
S1.006	S7	136.729	0.174	0.000	1.64	249.7	SURCHARGED	
S2.000	S8a	136.779	-0.196	0.000	0.04	4.5		OK
S1.007	S8	136.618	0.103	0.000	2.25	301.4	SURCHARGED	
S1.008	S9	136.341	-0.144	0.000	0.86	350.0		OK
S1.009	S10	135.946	-0.259	0.000	0.50	350.1		OK
S1.010	S11	135.574	0.469	0.000	0.06	36.7	SURCHARGED	
S1.011	S12	135.573	0.958	0.000	0.08	25.5	SURCHARGED	
S1.012	S13	135.573	1.008	0.000	0.03	26.7	SURCHARGED	
S3.000	S16	135.574	1.279	0.000	0.08	3.8	SURCHARGED	

