

Coopers		Page 0
Park House Sandpiper Court Chester CH4 9QU	Edge Hill Phase 4	
Date 21/07/2022	Designed by JAR	
File 7843 - SW 6A.MDX	Checked by AJ	
Micro Drainage		Network 2020.1.3

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 7843 - SW 6A.SWS

Pipe Sizes 7843 - SW 6 Manhole Sizes 7843 - SW 6

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	16.000	Add Flow / Climate Change (%)	0
Ratio R	0.268	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	0.000
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	0.75
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for 7843 - SW 6A.SWS

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	27.785	0.308	90.2	0.227	5.00	0.0	0.600		o	225	Pipe/Conduit	
1.001	24.933	0.148	168.5	0.076	0.00	0.0	0.600		o	225	Pipe/Conduit	
2.000	11.170	0.391	28.6	0.207	5.00	0.0	0.600		o	225	Pipe/Conduit	
2.001	25.368	0.909	27.9	0.023	0.00	0.0	0.600		o	225	Pipe/Conduit	
1.002	27.006	0.113	239.0	0.047	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.003	21.867	0.078	280.4	0.096	0.00	0.0	0.600		o	375	Pipe/Conduit	
3.000	21.876	0.314	69.7	0.069	5.00	0.0	0.600		o	225	Pipe/Conduit	
4.000	20.182	0.795	25.4	0.109	5.00	0.0	0.600		o	225	Pipe/Conduit	
3.001	38.756	0.376	103.1	0.069	0.00	0.0	0.600		o	225	Pipe/Conduit	
3.002	15.995	0.155	103.2	0.092	0.00	0.0	0.600		o	225	Pipe/Conduit	

Network Results Table

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)
1.000	44.64	5.34	89.106	0.227	0.0	0.0	0.0	1.38	54.8	27.4
1.001	43.39	5.75	88.798	0.303	0.0	0.0	0.0	1.00	39.9	35.6
2.000	45.48	5.08	89.950	0.207	0.0	0.0	0.0	2.46	97.7	25.5
2.001	44.93	5.25	89.559	0.230	0.0	0.0	0.0	2.49	98.9	28.0
1.002	42.14	6.19	88.575	0.580	0.0	0.0	0.0	1.01	71.6	66.2
1.003	41.25	6.53	88.387	0.676	0.0	0.0	0.0	1.08	119.0	75.5
3.000	44.97	5.23	90.166	0.069	0.0	0.0	0.0	1.57	62.4	8.4
4.000	45.30	5.13	90.647	0.109	0.0	0.0	0.0	2.61	103.7	13.4
3.001	43.44	5.73	89.852	0.247	0.0	0.0	0.0	1.29	51.2	29.1
3.002	42.84	5.94	89.476	0.339	0.0	0.0	0.0	1.29	51.2	39.3

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Network Design Table for 7843 - SW 6A.SWS

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
3.003	15.293	0.149	102.6	0.167	0.00	0.0	0.600		o	300	Pipe/Conduit	
3.004	13.706	0.400	34.3	0.064	0.00	0.0	0.600		o	300	Pipe/Conduit	
3.005	7.430	0.314	23.7	0.092	0.00	0.0	0.600		o	375	Pipe/Conduit	
1.004	28.219	0.647	43.6	0.072	0.00	0.0	0.600		o	450	Pipe/Conduit	
5.000	59.579	0.355	168.0	0.143	5.00	0.0	0.600		o	225	Pipe/Conduit	
5.001	30.010	0.531	56.5	0.103	0.00	0.0	0.600		o	225	Pipe/Conduit	
1.005	39.581	0.132	300.0	0.052	0.00	0.0	0.600		o	450	Pipe/Conduit	
1.006	59.159	1.478	40.0	0.057	0.00	0.0	0.600		o	450	Pipe/Conduit	
1.007	19.679	0.757	26.0	0.057	0.00	0.0	0.600		o	450	Pipe/Conduit	
6.000	21.171	0.322	65.7	0.057	5.00	0.0	0.600		o	225	Pipe/Conduit	
1.008	26.821	0.791	33.9	0.057	0.00	0.0	0.600		o	450	Pipe/Conduit	
1.009	14.587	0.561	26.0	0.057	0.00	0.0	0.600		o	450	Pipe/Conduit	
1.010	20.650	0.103	200.5	0.057	0.00	0.0	0.600		o	450	Pipe/Conduit	
1.011	15.000	0.075	200.0	0.060	0.00	0.0	0.600		o	450	Pipe/Conduit	
1.012	15.001	1.899	7.9	0.000	0.00	0.0		0.045 3 \=/		500	1:3 Swale	
1.013	14.990	2.677	5.6	0.000	0.00	0.0		0.045 3 \=/		500	1:3 Swale	
1.014	15.000	2.679	5.6	0.000	0.00	0.0		0.045 3 \=/		500	1:3 Swale	
1.015	15.000	2.174	6.9	0.000	0.00	0.0		0.045 3 \=/		500	1:3 Swale	
1.016	15.010	2.345	6.4	0.000	0.00	0.0		0.045 3 \=/		500	1:3 Swale	
1.017	17.758	3.229	5.5	0.000	0.00	0.0		0.045 3 \=/		500	1:3 Swale	
1.018	7.643	0.024	318.0	0.000	0.00	0.0	0.600		o	675	Pipe/Conduit	

Network Results Table

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)
3.003	42.38	6.11	89.246	0.506	0.0	0.0	0.0	1.55	109.7	58.1
3.004	42.15	6.19	89.097	0.570	0.0	0.0	0.0	2.70	190.5	65.1
3.005	42.06	6.22	88.622	0.662	0.0	0.0	0.0	3.74	412.6	75.4
1.004	40.86	6.69	87.117	1.410	0.0	0.0	0.0	3.09	490.8	156.0
5.000	42.71	5.99	87.581	0.143	0.0	0.0	0.0	1.01	40.0	16.5
5.001	41.93	6.27	87.226	0.246	0.0	0.0	0.0	1.74	69.3	27.9
1.005	39.51	7.25	86.470	1.708	0.0	0.0	0.0	1.17	185.8	182.7
1.006	38.82	7.56	86.338	1.765	0.0	0.0	0.0	3.22	512.3	185.6
1.007	38.64	7.64	84.860	1.822	0.0	0.0	0.0	4.00	636.2	190.7
6.000	45.02	5.22	84.651	0.057	0.0	0.0	0.0	1.62	64.2	6.9
1.008	38.36	7.77	84.103	1.936	0.0	0.0	0.0	3.50	556.8	201.1
1.009	38.23	7.83	81.813	1.993	0.0	0.0	0.0	4.00	636.1	206.4
1.010	37.73	8.07	81.252	2.050	0.0	0.0	0.0	1.43	227.8	209.5
1.011	37.38	8.24	79.537	2.110	0.0	0.0	0.0	1.43	228.1	213.6
1.012	37.23	8.32	79.412	2.110	0.0	0.0	0.0	3.33	3327.8	213.6
1.013	37.11	8.38	77.513	2.110	0.0	0.0	0.0	3.95	3952.4	213.6
1.014	36.98	8.44	74.836	2.110	0.0	0.0	0.0	3.95	3952.4	213.6
1.015	36.85	8.51	72.158	2.110	0.0	0.0	0.0	3.56	3560.6	213.6
1.016	36.72	8.58	69.984	2.110	0.0	0.0	0.0	3.70	3697.1	213.6
1.017	36.57	8.65	67.638	2.110	0.0	0.0	0.0	3.99	3988.3	213.6
1.018	36.41	8.74	62.900	2.110	0.0	0.0	0.0	1.46	524.0	213.6

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Network Design Table for 7843 - SW 6A.SWS

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.019	63.603	0.159	400.0	0.000	0.00	0.0	0.600		o	675	Pipe/Conduit	
1.020	13.293	0.229	58.0	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
1.021	48.552	3.215	15.1	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	

Network Results Table

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)
1.019	34.96	9.55	62.876	2.110	0.0	0.0	0.0	1.30	466.7	213.6
1.020	34.75	9.68	62.717	2.110	0.0	0.0	0.0	1.72	68.4«	213.6
1.021	34.36	9.92	62.488	2.110	0.0	0.0	0.0	3.38	134.6«	213.6

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Manhole Schedules for 7843 - SW 6A.SWS

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
101	90.531	1.425	Open Manhole	1350	1.000	89.106	225				
102	90.630	1.832	Open Manhole	1350	1.001	88.798	225	1.000	88.798	225	
103	91.674	1.724	Open Manhole	1350	2.000	89.950	225				
104	91.285	1.726	Open Manhole	1350	2.001	89.559	225	2.000	89.559	225	
105	90.531	1.956	Open Manhole	1500	1.002	88.575	300	1.001	88.650	225	
								2.001	88.650	225	
106	90.549	2.162	Open Manhole	1500	1.003	88.387	375	1.002	88.462	300	
107	91.816	1.650	Open Manhole	1350	3.000	90.166	225				
108	92.297	1.650	Open Manhole	1350	4.000	90.647	225				
109	91.544	1.692	Open Manhole	1350	3.001	89.852	225	3.000	89.852	225	
								4.000	89.852	225	
110	91.058	1.582	Open Manhole	1350	3.002	89.476	225	3.001	89.476	225	
111	90.861	1.615	Open Manhole	1500	3.003	89.246	300	3.002	89.321	225	
112	90.673	1.576	Open Manhole	1500	3.004	89.097	300	3.003	89.097	300	
113	90.500	1.878	Open Manhole	1500	3.005	88.622	375	3.004	88.697	300	
114	90.392	3.275	Open Manhole	1500	1.004	87.117	450	1.003	88.309	375	1117
								3.005	88.308	375	1116
115	89.231	1.650	Open Manhole	1350	5.000	87.581	225				
116	89.297	2.071	Open Manhole	1350	5.001	87.226	225	5.000	87.226	225	
117	89.047	2.577	Open Manhole	1500	1.005	86.470	450	1.004	86.470	450	
								5.001	86.695	225	
118	88.322	1.984	Open Manhole	1500	1.006	86.338	450	1.005	86.338	450	
119	87.031	2.171	Open Manhole	1500	1.007	84.860	450	1.006	84.860	450	
120	86.076	1.425	Open Manhole	1350	6.000	84.651	225				
121	86.104	2.001	Open Manhole	1500	1.008	84.103	450	1.007	84.103	450	
								6.000	84.329	225	1
122	84.885	3.072	Open Manhole	1500	1.009	81.813	450	1.008	83.312	450	1499
123	83.415	2.163	Open Manhole	1500	1.010	81.252	450	1.009	81.252	450	
124	82.458	2.921	Open Manhole	1500	1.011	79.537	450	1.010	81.149	450	1612
125	80.000	0.588	Junction		1.012	79.412	500	1.011	79.462	450	
126	78.020	0.507	Junction		1.013	77.513	500	1.012	77.513	500	
127	75.340	0.504	Junction		1.014	74.836	500	1.013	74.836	500	
128	72.682	0.524	Junction		1.015	72.158	500	1.014	72.158	500	
129	70.489	0.505	Junction		1.016	69.984	500	1.015	69.984	500	
130	68.142	0.504	Junction		1.017	67.638	500	1.016	67.638	500	
131	65.644	2.744	Open Manhole	1800	1.018	62.900	675	1.017	64.409	500	1334
132	64.300	1.424	Open Manhole	1800	1.019	62.876	675	1.018	62.876	675	
133	65.693	2.976	Open Manhole	1800	1.020	62.717	225	1.019	62.717	675	
134	65.416	2.928	Open Manhole	1500	1.021	62.488	225	1.020	62.488	225	
135	60.673	1.400	Open Manhole	1500		OUTFALL		1.021	59.273	225	

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Manhole Schedules for 7843 - SW 6A.SWS

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
101	297271.239	515807.692	297271.239	515807.692	Required	
102	297298.037	515815.030	297298.037	515815.030	Required	
103	297321.070	515850.766	297321.070	515850.766	Required	
104	297318.624	515839.867	297318.624	515839.867	Required	
105	297322.970	515814.874	297322.970	515814.874	Required	
106	297347.784	515804.216	297347.784	515804.216	Required	
107	297375.322	515889.042	297375.322	515889.042	Required	
108	297358.487	515865.624	297358.487	515865.624	Required	
109	297378.590	515867.411	297378.590	515867.411	Required	
110	297389.772	515830.303	297389.772	515830.303	Required	
111	297388.359	515814.371	297388.359	515814.371	Required	
112	297379.700	515801.766	297379.700	515801.766	Required	
113	297367.770	515795.018	297367.770	515795.018	Required	
114	297363.458	515788.967	297363.458	515788.967	Required	
115	297288.759	515739.048	297288.759	515739.048	Required	
116	297346.127	515755.127	297346.127	515755.127	Required	
117	297375.023	515763.227	297375.023	515763.227	Required	
118	297393.567	515728.259	297393.567	515728.259	Required	

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Manhole Schedules for 7843 - SW 6A.SWS

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
119	297346.769	515692.069	297346.769	515692.069	Required	
120	297327.400	515679.566	297327.400	515679.566	Required	
121	297347.321	515672.398	297347.321	515672.398	Required	
122	297374.133	515673.055	297374.133	515673.055	Required	
123	297387.901	515668.234	297387.901	515668.234	Required	
124	297402.875	515654.015	297402.875	515654.015	Required	
125	297412.667	515642.652			No Entry	
126	297422.460	515631.289			No Entry	
127	297432.252	515619.927			No Entry	
128	297442.044	515608.564			No Entry	
129	297451.837	515597.201			No Entry	
130	297461.629	515585.838			No Entry	
131	297477.369	515577.616	297477.369	515577.616	Required	
132	297484.098	515573.992	297484.098	515573.992	Required	
133	297482.096	515510.421	297482.096	515510.421	Required	
134	297484.569	515497.360	297484.569	515497.360	Required	
135	297526.032	515472.098			No Entry	

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PIPELINE SCHEDULES for 7843 - SW 6A.SWS

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	225	101	90.531	89.106	1.200	Open Manhole	1350
1.001	o	225	102	90.630	88.798	1.607	Open Manhole	1350
2.000	o	225	103	91.674	89.950	1.499	Open Manhole	1350
2.001	o	225	104	91.285	89.559	1.501	Open Manhole	1350
1.002	o	300	105	90.531	88.575	1.656	Open Manhole	1500
1.003	o	375	106	90.549	88.387	1.787	Open Manhole	1500
3.000	o	225	107	91.816	90.166	1.425	Open Manhole	1350
4.000	o	225	108	92.297	90.647	1.425	Open Manhole	1350
3.001	o	225	109	91.544	89.852	1.467	Open Manhole	1350
3.002	o	225	110	91.058	89.476	1.357	Open Manhole	1350
3.003	o	300	111	90.861	89.246	1.315	Open Manhole	1500
3.004	o	300	112	90.673	89.097	1.276	Open Manhole	1500
3.005	o	375	113	90.500	88.622	1.503	Open Manhole	1500
1.004	o	450	114	90.392	87.117	2.825	Open Manhole	1500
5.000	o	225	115	89.231	87.581	1.425	Open Manhole	1350
5.001	o	225	116	89.297	87.226	1.846	Open Manhole	1350
1.005	o	450	117	89.047	86.470	2.127	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	27.785	90.2	102	90.630	88.798	1.607	Open Manhole	1350
1.001	24.933	168.5	105	90.531	88.650	1.656	Open Manhole	1500
2.000	11.170	28.6	104	91.285	89.559	1.501	Open Manhole	1350
2.001	25.368	27.9	105	90.531	88.650	1.656	Open Manhole	1500
1.002	27.006	239.0	106	90.549	88.462	1.787	Open Manhole	1500
1.003	21.867	280.4	114	90.392	88.309	1.708	Open Manhole	1500
3.000	21.876	69.7	109	91.544	89.852	1.467	Open Manhole	1350
4.000	20.182	25.4	109	91.544	89.852	1.467	Open Manhole	1350
3.001	38.756	103.1	110	91.058	89.476	1.357	Open Manhole	1350
3.002	15.995	103.2	111	90.861	89.321	1.315	Open Manhole	1500
3.003	15.293	102.6	112	90.673	89.097	1.276	Open Manhole	1500
3.004	13.706	34.3	113	90.500	88.697	1.503	Open Manhole	1500
3.005	7.430	23.7	114	90.392	88.308	1.709	Open Manhole	1500
1.004	28.219	43.6	117	89.047	86.470	2.127	Open Manhole	1500
5.000	59.579	168.0	116	89.297	87.226	1.846	Open Manhole	1350
5.001	30.010	56.5	117	89.047	86.695	2.127	Open Manhole	1500
1.005	39.581	300.0	118	88.322	86.338	1.534	Open Manhole	1500

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PIPELINE SCHEDULES for 7843 - SW 6A.SWS

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.006	o	450	118	88.322	86.338	1.534	Open Manhole	1500
1.007	o	450	119	87.031	84.860	1.721	Open Manhole	1500
6.000	o	225	120	86.076	84.651	1.200	Open Manhole	1350
1.008	o	450	121	86.104	84.103	1.551	Open Manhole	1500
1.009	o	450	122	84.885	81.813	2.622	Open Manhole	1500
1.010	o	450	123	83.415	81.252	1.713	Open Manhole	1500
1.011	o	450	124	82.458	79.537	2.471	Open Manhole	1500
1.012	3 \=/	500	125	80.000	79.412	0.088	Junction	
1.013	3 \=/	500	126	78.020	77.513	0.007	Junction	
1.014	3 \=/	500	127	75.340	74.836	0.004	Junction	
1.015	3 \=/	500	128	72.682	72.158	0.024	Junction	
1.016	3 \=/	500	129	70.489	69.984	0.005	Junction	
1.017	3 \=/	500	130	68.142	67.638	0.004	Junction	
1.018	o	675	131	65.644	62.900	2.069	Open Manhole	1800
1.019	o	675	132	64.300	62.876	0.749	Open Manhole	1800
1.020	o	225	133	65.693	62.717	2.751	Open Manhole	1800
1.021	o	225	134	65.416	62.488	2.703	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.006	59.159	40.0	119	87.031	84.860	1.721	Open Manhole	1500
1.007	19.679	26.0	121	86.104	84.103	1.551	Open Manhole	1500
6.000	21.171	65.7	121	86.104	84.329	1.550	Open Manhole	1500
1.008	26.821	33.9	122	84.885	83.312	1.123	Open Manhole	1500
1.009	14.587	26.0	123	83.415	81.252	1.713	Open Manhole	1500
1.010	20.650	200.5	124	82.458	81.149	0.859	Open Manhole	1500
1.011	15.000	200.0	125	80.000	79.462	0.088	Junction	
1.012	15.001	7.9	126	78.020	77.513	0.007	Junction	
1.013	14.990	5.6	127	75.340	74.836	0.004	Junction	
1.014	15.000	5.6	128	72.682	72.158	0.024	Junction	
1.015	15.000	6.9	129	70.489	69.984	0.005	Junction	
1.016	15.010	6.4	130	68.142	67.638	0.004	Junction	
1.017	17.758	5.5	131	65.644	64.409	0.735	Open Manhole	1800
1.018	7.643	318.0	132	64.300	62.876	0.749	Open Manhole	1800
1.019	63.603	400.0	133	65.693	62.717	2.301	Open Manhole	1800
1.020	13.293	58.0	134	65.416	62.488	2.703	Open Manhole	1500
1.021	48.552	15.1	135	60.673	59.273	1.175	Open Manhole	1500

Free Flowing Outfall Details for 7843 - SW 6A.SWS

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.021	135	60.673	59.273	0.000	1500	0

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Simulation Criteria for 7843 - SW 6A.SWS

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
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 Offline Controls 0 Number of Time/Area Diagrams 0			
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0			

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	16.000	Storm Duration (mins)	30
Ratio R	0.268		

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Online Controls for 7843 - SW 6A.SWS

Hydro-Brake® Optimum Manhole: 133, DS/PN: 1.020, Volume (m³): 29.7

Unit Reference MD-SHE-0207-2370-1500-2370
Design Head (m) 1.500
Design Flow (l/s) 23.7
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 207
Invert Level (m) 62.717
Minimum Outlet Pipe Diameter (mm) 225
Suggested Manhole Diameter (mm) 1800

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	23.7	Kick-Flo®	0.994	19.5
Flush-Flo™	0.452	23.7	Mean Flow over Head Range	-	20.4

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	7.1	0.800	22.4	2.000	27.2	4.000	37.9	7.000	49.7
0.200	19.9	1.000	19.5	2.200	28.5	4.500	40.2	7.500	51.4
0.300	23.0	1.200	21.3	2.400	29.7	5.000	42.3	8.000	53.1
0.400	23.6	1.400	22.9	2.600	30.8	5.500	44.3	8.500	54.6
0.500	23.7	1.600	24.4	3.000	33.0	6.000	46.2	9.000	56.2
0.600	23.4	1.800	25.9	3.500	35.6	6.500	48.0	9.500	57.7

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Storage Structures for 7843 - SW 6A.SWS

Tank or Pond Manhole: 133, DS/PN: 1.020

Invert Level (m) 62.717

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	1200.0	0.400	1351.9	0.800	1512.8	1.200	1682.8
0.100	1237.1	0.500	1391.3	0.900	1554.5	1.300	1726.7
0.200	1274.8	0.600	1431.2	1.000	1596.7	1.400	1771.2
0.300	1313.1	0.700	1471.7	1.100	1639.4	1.500	1816.2

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 7843 - SW 6A.SWS

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

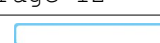
Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 16.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.268 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep Fine Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
 Return Period(s) (years) 1, 30, 100, 101
 Climate Change (%) 0, 0, 50, 0

US/MH		Return Climate		First (X)		First (Y)		First (Z)		Water	Surcharged
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Overflow	Act.	Level (m)	Depth (m)
1.000	101 15 Winter		1	+0%	30/15 Summer	100/15 Summer				89.210	-0.121
1.001	102 15 Winter		1	+0%	30/15 Summer					88.946	-0.077
2.000	103 15 Winter		1	+0%	100/15 Summer					90.026	-0.149
2.001	104 15 Winter		1	+0%	100/15 Summer					89.634	-0.150
1.002	105 15 Winter		1	+0%	30/15 Summer					88.783	-0.092
1.003	106 15 Winter		1	+0%	30/15 Summer					88.595	-0.166
3.000	107 15 Winter		1	+0%	100/15 Summer					90.218	-0.173
4.000	108 15 Winter		1	+0%	100/15 Summer					90.697	-0.175
3.001	109 15 Winter		1	+0%	30/15 Summer	100/15 Winter				89.962	-0.115
3.002	110 15 Winter		1	+0%	30/15 Summer					89.610	-0.091
3.003	111 15 Winter		1	+0%	30/15 Summer					89.392	-0.154
3.004	112 15 Winter		1	+0%	100/15 Summer					89.211	-0.186
3.005	113 15 Winter		1	+0%	100/15 Winter					88.751	-0.246
1.004	114 15 Winter		1	+0%	30/15 Winter					87.282	-0.285
5.000	115 15 Winter		1	+0%	100/15 Summer	100/15 Winter				87.675	-0.131
5.001	116 15 Winter		1	+0%	30/15 Summer					87.315	-0.136
1.005	117 15 Winter		1	+0%	30/15 Summer					86.797	-0.123
1.006	118 15 Winter		1	+0%	100/15 Summer					86.510	-0.278
1.007	119 15 Winter		1	+0%	100/15 Summer					85.030	-0.280
6.000	120 15 Winter		1	+0%						84.698	-0.178
1.008	121 15 Winter		1	+0%	100/15 Summer					84.282	-0.271
1.009	122 15 Winter		1	+0%	30/15 Summer					82.006	-0.257
1.010	123 15 Winter		1	+0%	30/15 Summer					81.589	-0.113
1.011	124 15 Winter		1	+0%	30/15 Summer					79.897	-0.090
1.012	125 15 Winter		1	+0%						79.537	-0.463
1.013	126 15 Winter		1	+0%						77.626	-0.394
1.014	127 15 Winter		1	+0%						74.950	-0.390
1.015	128 15 Winter		1	+0%						72.277	-0.404
1.016	129 15 Winter		1	+0%						70.101	-0.388
1.017	130 15 Winter		1	+0%						67.752	-0.391

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 7843 - SW 6A.SWS

PN	US/MH Name	Flooded		Half Drain		Pipe	Status	Level Exceeded
		Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
1.000	101	0.000	0.43			21.8	OK	5
1.001	102	0.000	0.76			27.9	OK	
2.000	103	0.000	0.24			20.1	OK	
2.001	104	0.000	0.24			21.8	OK	
1.002	105	0.000	0.81			52.5	OK	
1.003	106	0.000	0.59			60.0	OK	
3.000	107	0.000	0.12			6.7	OK	
4.000	108	0.000	0.11			10.6	OK	
3.001	109	0.000	0.47			22.8	OK	2
3.002	110	0.000	0.67			30.2	OK	
3.003	111	0.000	0.47			43.5	OK	
3.004	112	0.000	0.31			48.3	OK	
3.005	113	0.000	0.25			55.4	OK	
1.004	114	0.000	0.29			120.8	OK	
5.000	115	0.000	0.34			13.3	OK	1
5.001	116	0.000	0.33			21.4	OK	
1.005	117	0.000	0.87			143.2	OK	
1.006	118	0.000	0.31			147.1	OK	
1.007	119	0.000	0.31			150.5	OK	
6.000	120	0.000	0.09			5.5	OK	
1.008	121	0.000	0.33			157.5	OK	
1.009	122	0.000	0.38			160.5	OK	
1.010	123	0.000	0.91			164.4	OK	
1.011	124	0.000	0.99			168.2	OK	
1.012	125	0.000	0.03			168.2	OK	
1.013	126	0.000	0.04			167.8	OK	
1.014	127	0.000	0.04			167.3	OK	
1.015	128	0.000	0.04			166.9	OK	
1.016	129	0.000	0.04			167.5	OK	
1.017	130	0.000	0.04			167.8	OK	

Coopers		Page 13
Park House Sandpiper Court Chester CH4 9QU	Edge Hill Phase 4	
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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 7843 - SW 6A.SWS

										Water	Surcharged	Flooded
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)	
1.018	131	15 Winter	1	+0%	100/15 Summer				63.278	-0.297	0.000	
1.019	132	15 Winter	1	+0%	100/15 Summer				63.174	-0.377	0.000	
1.020	133	360 Winter	1	+0%	30/30 Winter				62.898	-0.044	0.000	
1.021	134	360 Winter	1	+0%					62.543	-0.170	0.000	

				Half Drain	Pipe		
	US/MH	Flow /	Overflow	Time	Flow		Level
PN	Name	Cap.	(l/s)	(mins)	(l/s)	Status	Exceeded
1.018	131	0.60			167.9	OK	
1.019	132	0.41			167.9	OK	
1.020	133	0.30			17.8	OK	
1.021	134	0.14			17.8	OK	

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Park House Sandpiper Court Chester CH4 9QU	Edge Hill Phase 4	
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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 7843 - SW 6A.SWS

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

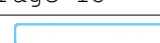
Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 16.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.268 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep Fine Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
 Return Period(s) (years) 1, 30, 100, 101
 Climate Change (%) 0, 0, 50, 0

US/MH		Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth
PN	Name								(m)	(m)
1.000	101 15 Winter		30	+0%	30/15 Summer	100/15 Summer			89.719	0.388
1.001	102 15 Winter		30	+0%	30/15 Summer				89.497	0.474
2.000	103 15 Winter		30	+0%	100/15 Summer				90.075	-0.100
2.001	104 15 Winter		30	+0%	100/15 Summer				89.685	-0.099
1.002	105 15 Winter		30	+0%	30/15 Summer				89.157	0.282
1.003	106 15 Winter		30	+0%	30/15 Summer				88.801	0.039
3.000	107 15 Winter		30	+0%	100/15 Summer				90.341	-0.050
4.000	108 15 Winter		30	+0%	100/15 Summer				90.727	-0.145
3.001	109 15 Winter		30	+0%	30/15 Summer	100/15 Winter			90.312	0.235
3.002	110 15 Winter		30	+0%	30/15 Summer				89.909	0.208
3.003	111 15 Winter		30	+0%	30/15 Summer				89.573	0.027
3.004	112 15 Winter		30	+0%	100/15 Summer				89.293	-0.104
3.005	113 15 Winter		30	+0%	100/15 Winter				88.840	-0.157
1.004	114 15 Winter		30	+0%	30/15 Winter				87.584	0.017
5.000	115 15 Winter		30	+0%	100/15 Summer	100/15 Winter			87.752	-0.054
5.001	116 15 Winter		30	+0%	30/15 Summer				87.550	0.099
1.005	117 15 Winter		30	+0%	30/15 Summer				87.292	0.372
1.006	118 15 Winter		30	+0%	100/15 Summer				86.619	-0.169
1.007	119 15 Winter		30	+0%	100/15 Summer				85.138	-0.172
6.000	120 15 Winter		30	+0%					84.724	-0.152
1.008	121 15 Winter		30	+0%	100/15 Summer				84.398	-0.155
1.009	122 15 Winter		30	+0%	30/15 Summer				82.413	0.150
1.010	123 15 Winter		30	+0%	30/15 Summer				81.999	0.297
1.011	124 15 Winter		30	+0%	30/15 Summer				80.331	0.344
1.012	125 15 Winter		30	+0%					79.597	-0.403
1.013	126 15 Winter		30	+0%					77.683	-0.337
1.014	127 15 Winter		30	+0%					75.006	-0.334
1.015	128 15 Winter		30	+0%					72.336	-0.346
1.016	129 15 Winter		30	+0%					70.159	-0.330
1.017	130 15 Winter		30	+0%					67.807	-0.335

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 7843 - SW
6A.SWS

PN	US/MH Name	Flooded		Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
		Volume (m³)	Flow / Cap.					
1.000	101	0.000	0.86			43.7	SURCHARGED	5
1.001	102	0.000	1.54			56.6	SURCHARGED	
2.000	103	0.000	0.59			48.5	OK	
2.001	104	0.000	0.59			53.7	OK	
1.002	105	0.000	1.76			113.2	SURCHARGED	
1.003	106	0.000	1.30			131.3	SURCHARGED	
3.000	107	0.000	0.26			14.8	OK	
4.000	108	0.000	0.27			25.6	OK	
3.001	109	0.000	1.03			49.9	SURCHARGED	2
3.002	110	0.000	1.49			67.5	SURCHARGED	
3.003	111	0.000	1.11			102.3	SURCHARGED	
3.004	112	0.000	0.74			116.7	OK	
3.005	113	0.000	0.63			137.0	OK	
1.004	114	0.000	0.66			275.0	SURCHARGED	
5.000	115	0.000	0.82			31.8	OK	1
5.001	116	0.000	0.72			46.5	SURCHARGED	
1.005	117	0.000	1.96			323.5	SURCHARGED	
1.006	118	0.000	0.70			332.1	OK	
1.007	119	0.000	0.69			339.1	OK	
6.000	120	0.000	0.23			13.3	OK	
1.008	121	0.000	0.75			354.8	OK	
1.009	122	0.000	0.86			361.3	SURCHARGED	
1.010	123	0.000	2.03			366.4	SURCHARGED	
1.011	124	0.000	2.20			371.8	SURCHARGED	
1.012	125	0.000	0.08			371.6	OK	
1.013	126	0.000	0.09			372.4	OK	
1.014	127	0.000	0.09			372.8	OK	
1.015	128	0.000	0.09			372.8	OK	
1.016	129	0.000	0.10			372.4	OK	
1.017	130	0.000	0.09			371.8	OK	

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Park House Sandpiper Court Chester CH4 9QU	Edge Hill Phase 4	
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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 7843 - SW
6A.SWS

PN	US/MH		Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded
	Name	Storm							Level (m)	Depth (m)	Volume (m³)
1.018	131	30 Winter	30	+0%	100/15 Summer				63.575	0.000	0.000
1.019	132	15 Winter	30	+0%	100/15 Summer				63.377	-0.174	0.000
1.020	133	360 Winter	30	+0%	30/30 Winter				63.126	0.184	0.000
1.021	134	600 Winter	30	+0%					62.553	-0.160	0.000

		Half Drain		Pipe			
PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	Level Exceeded
1.018	131	1.27			356.0	OK	
1.019	132	0.90			370.7	OK	
1.020	133	0.40			23.6	SURCHARGED	
1.021	134	0.18			23.6	OK	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 7843 - SW 6A.SWS

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 16.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.268 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep Fine Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
 Return Period(s) (years) 1, 30, 100, 101
 Climate Change (%) 0, 0, 50, 0

US/MH		Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth
PN	Name								(m)	(m)
1.000	101 15 Winter		100	+50%	30/15 Summer	100/15 Summer			90.541	1.210
1.001	102 15 Winter		100	+50%	30/15 Summer				90.371	1.348
2.000	103 15 Winter		100	+50%	100/15 Summer				90.887	0.712
2.001	104 15 Winter		100	+50%	100/15 Summer				90.580	0.796
1.002	105 15 Winter		100	+50%	30/15 Summer				89.883	1.009
1.003	106 15 Winter		100	+50%	30/15 Summer				89.202	0.440
3.000	107 15 Winter		100	+50%	100/15 Summer				91.632	1.241
4.000	108 15 Winter		100	+50%	100/15 Summer				91.716	0.844
3.001	109 15 Winter		100	+50%	30/15 Summer	100/15 Winter			91.546	1.469
3.002	110 15 Winter		100	+50%	30/15 Summer				90.830	1.129
3.003	111 15 Winter		100	+50%	30/15 Summer				90.076	0.530
3.004	112 15 Winter		100	+50%	100/15 Summer				89.634	0.237
3.005	113 15 Winter		100	+50%	100/15 Winter				89.180	0.183
1.004	114 15 Winter		100	+50%	30/15 Winter				88.935	1.368
5.000	115 15 Winter		100	+50%	100/15 Summer	100/15 Winter			89.232	1.426
5.001	116 15 Winter		100	+50%	30/15 Summer				88.901	1.450
1.005	117 15 Winter		100	+50%	30/15 Summer				88.336	1.416
1.006	118 15 Winter		100	+50%	100/15 Summer				87.208	0.421
1.007	119 15 Winter		100	+50%	100/15 Summer				85.561	0.251
6.000	120 15 Winter		100	+50%					84.783	-0.093
1.008	121 15 Winter		100	+50%	100/15 Summer				84.752	0.199
1.009	122 30 Winter		100	+50%	30/15 Summer				83.482	1.219
1.010	123 30 Winter		100	+50%	30/15 Summer				82.551	0.849
1.011	124 30 Winter		100	+50%	30/15 Summer				80.912	0.925
1.012	125 30 Winter		100	+50%					79.638	-0.362
1.013	126 30 Winter		100	+50%					77.722	-0.298
1.014	127 30 Winter		100	+50%					75.045	-0.295
1.015	128 30 Winter		100	+50%					72.377	-0.305
1.016	129 30 Winter		100	+50%					70.199	-0.290
1.017	130 30 Winter		100	+50%					67.847	-0.296

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 7843 - SW
6A.SWS

PN	US/MH Name	Flooded		Half Drain		Pipe	Status	Level Exceeded
		Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
1.000	101	9.682	1.47			74.7	FLOOD	5
1.001	102	0.000	2.21			81.4	FLOOD RISK	
2.000	103	0.000	0.90			74.6	SURCHARGED	
2.001	104	0.000	0.88			80.6	SURCHARGED	
1.002	105	0.000	2.56			164.9	SURCHARGED	
1.003	106	0.000	1.96			198.5	SURCHARGED	
3.000	107	0.000	0.46			26.2	FLOOD RISK	
4.000	108	0.000	0.43			40.7	SURCHARGED	
3.001	109	1.651	1.60			77.5	FLOOD	2
3.002	110	0.000	2.20			99.5	FLOOD RISK	
3.003	111	0.000	1.77			163.1	SURCHARGED	
3.004	112	0.000	1.19			187.7	SURCHARGED	
3.005	113	0.000	1.00			218.7	SURCHARGED	
1.004	114	0.000	1.00			419.8	SURCHARGED	
5.000	115	0.773	1.10			42.4	FLOOD	1
5.001	116	0.000	1.09			70.4	SURCHARGED	
1.005	117	0.000	2.98			492.3	SURCHARGED	
1.006	118	0.000	1.06			498.5	SURCHARGED	
1.007	119	0.000	1.03			506.3	SURCHARGED	
6.000	120	0.000	0.44			25.6	OK	
1.008	121	0.000	1.13			530.6	SURCHARGED	
1.009	122	0.000	1.29			543.2	SURCHARGED	
1.010	123	0.000	3.07			555.5	SURCHARGED	
1.011	124	0.000	3.36			568.3	SURCHARGED	
1.012	125	0.000	0.12			568.4	OK	
1.013	126	0.000	0.14			568.5	FLOOD RISK*	
1.014	127	0.000	0.14			568.4	FLOOD RISK*	
1.015	128	0.000	0.14			568.2	OK	
1.016	129	0.000	0.15			568.0	FLOOD RISK*	
1.017	130	0.000	0.14			568.0	FLOOD RISK*	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 7843 - SW
6A.SWS

PN	US/MH		Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded
	Name	Storm							Level (m)	Depth (m)	Volume (m³)
1.018	131	30 Winter	100	+50%	100/15 Summer				63.860	0.285	0.000
1.019	132	30 Winter	100	+50%	100/15 Summer				63.659	0.108	0.000
1.020	133	480 Winter	100	+50%	30/30 Winter				63.630	0.688	0.000
1.021	134	600 Winter	100	+50%					62.553	-0.160	0.000

		Half Drain		Pipe			
PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	Level Exceeded
1.018	131	2.03			568.2	SURCHARGED	
1.019	132	1.37			566.3	SURCHARGED	
1.020	133	0.40			23.6	SURCHARGED	
1.021	134	0.18			23.6	OK	

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Park House Sandpiper Court Chester CH4 9QU	Edge Hill Phase 4	
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101 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 7843 - SW 6A.SWS

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

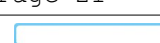
Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 16.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.268 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 1, 30, 100, 101
Climate Change (%) 0, 0, 50, 0

US/MH		Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth
PN	Name								(m)	(m)
1.000	101 15 Winter	101	+0%	30/15 Summer	100/15 Summer				90.204	0.873
1.001	102 15 Winter	101	+0%	30/15 Summer					89.872	0.849
2.000	103 15 Winter	101	+0%	100/15 Summer					90.098	-0.077
2.001	104 15 Winter	101	+0%	100/15 Summer					89.840	0.056
1.002	105 15 Winter	101	+0%	30/15 Summer					89.391	0.517
1.003	106 15 Winter	101	+0%	30/15 Summer					88.865	0.103
3.000	107 15 Winter	101	+0%	100/15 Summer					90.747	0.356
4.000	108 15 Winter	101	+0%	100/15 Summer					90.776	-0.096
3.001	109 15 Winter	101	+0%	30/15 Summer	100/15 Winter				90.710	0.633
3.002	110 15 Winter	101	+0%	30/15 Summer					90.152	0.451
3.003	111 15 Winter	101	+0%	30/15 Summer					89.660	0.114
3.004	112 15 Winter	101	+0%	100/15 Summer					89.321	-0.076
3.005	113 15 Winter	101	+0%	100/15 Winter					88.872	-0.125
1.004	114 15 Winter	101	+0%	30/15 Winter					87.994	0.427
5.000	115 15 Winter	101	+0%	100/15 Summer	100/15 Winter				88.171	0.365
5.001	116 15 Winter	101	+0%	30/15 Summer					87.927	0.476
1.005	117 15 Winter	101	+0%	30/15 Summer					87.559	0.639
1.006	118 15 Winter	101	+0%	100/15 Summer					86.663	-0.125
1.007	119 15 Winter	101	+0%	100/15 Summer					85.181	-0.129
6.000	120 15 Winter	101	+0%						84.734	-0.142
1.008	121 15 Winter	101	+0%	100/15 Summer					84.446	-0.107
1.009	122 15 Winter	101	+0%	30/15 Summer					82.841	0.578
1.010	123 15 Winter	101	+0%	30/15 Summer					82.217	0.515
1.011	124 15 Winter	101	+0%	30/15 Summer					80.562	0.575
1.012	125 15 Winter	101	+0%						79.616	-0.384
1.013	126 15 Winter	101	+0%						77.701	-0.319
1.014	127 15 Winter	101	+0%						75.024	-0.316
1.015	128 15 Winter	101	+0%						72.355	-0.326
1.016	129 15 Winter	101	+0%						70.178	-0.311
1.017	130 15 Winter	101	+0%						67.826	-0.317

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101 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 7843 - SW
6A.SWS

PN	US/MH Name	Flooded		Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
		Volume (m ³)	Flow / Cap.					
1.000	101	0.000	1.03			52.4	SURCHARGED	5
1.001	102	0.000	1.84			67.8	SURCHARGED	
2.000	103	0.000	0.75			62.0	OK	
2.001	104	0.000	0.72			65.3	SURCHARGED	
1.002	105	0.000	2.15			138.2	SURCHARGED	
1.003	106	0.000	1.57			159.2	SURCHARGED	2
3.000	107	0.000	0.33			18.7	SURCHARGED	
4.000	108	0.000	0.35			32.7	OK	
3.001	109	0.000	1.24			60.1	SURCHARGED	
3.002	110	0.000	1.78			80.6	SURCHARGED	
3.003	111	0.000	1.35			124.2	SURCHARGED	1
3.004	112	0.000	0.90			141.9	OK	
3.005	113	0.000	0.77			167.8	OK	
1.004	114	0.000	0.81			338.4	SURCHARGED	
5.000	115	0.000	0.88			33.9	SURCHARGED	
5.001	116	0.000	0.82			53.4	SURCHARGED	
1.005	117	0.000	2.40			396.6	SURCHARGED	
1.006	118	0.000	0.86			406.1	OK	
1.007	119	0.000	0.85			415.7	OK	
6.000	120	0.000	0.29			17.1	OK	
1.008	121	0.000	0.93			436.3	OK	
1.009	122	0.000	1.05			444.7	SURCHARGED	
1.010	123	0.000	2.49			450.8	SURCHARGED	
1.011	124	0.000	2.70			456.6	SURCHARGED	
1.012	125	0.000	0.09			458.0	OK	
1.013	126	0.000	0.11			459.0	OK	
1.014	127	0.000	0.11			459.3	OK	
1.015	128	0.000	0.12			459.0	OK	
1.016	129	0.000	0.12			458.2	OK	
1.017	130	0.000	0.11			456.7	OK	

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Park House Sandpiper Court Chester CH4 9QU	Edge Hill Phase 4	
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101 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 7843 - SW
6A.SWS

										Water	Surcharged	Flooded
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)	
1.018	131	15 Winter	101	+0%	100/15 Summer				63.616	0.041	0.000	
1.019	132	15 Winter	101	+0%	100/15 Summer				63.555	0.004	0.000	
1.020	133	480 Winter	101	+0%	30/30 Winter				63.269	0.327	0.000	
1.021	134	360 Winter	101	+0%					62.553	-0.160	0.000	

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded		
1.018	131	1.63			456.5	SURCHARGED			
1.019	132	1.09			449.0	SURCHARGED			
1.020	133	0.40			23.6	SURCHARGED			
1.021	134	0.18			23.6	OK			