

Coopers		Page 0
Park House Sandpiper Court Chester CH4 9QU	Edge Hill Phase 4	
Date 02/03/2023 File 7843 - FW01 REV H.MDX	Designed by PW Checked by	
Micro Drainage	Network 2020.1.3	

FOUL SEWERAGE DESIGN

Design Criteria for 7843 FW01 REV H.FWS

Pipe Sizes 7843 - FW 6 Manhole Sizes 7843 - FW 6

Industrial Flow (l/s/ha)	0.00	Add Flow / Climate Change (%)	0
Industrial Peak Flow Factor	0.00	Minimum Backdrop Height (m)	0.200
Flow Per Person (l/per/day)	225.00	Maximum Backdrop Height (m)	0.000
Persons per House	3.00	Min Design Depth for Optimisation (m)	1.200
Domestic (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	0.75
Domestic Peak Flow Factor	6.00	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for 7843 FW01 REV H.FWS

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	31.664	0.235	134.7	0.000	9	0.0	1.500	o	150	Pipe/Conduit	
1.001	21.217	0.285	74.4	0.000	3	0.0	1.500	o	150	Pipe/Conduit	
2.000	29.698	1.024	29.0	0.000	12	0.0	1.500	o	150	Pipe/Conduit	
1.002	21.016	0.156	134.7	0.000	5	0.0	1.500	o	150	Pipe/Conduit	
1.003	20.926	1.125	18.6	0.000	6	0.0	1.500	o	150	Pipe/Conduit	
3.000	8.654	0.064	135.2	0.000	15	0.0	1.500	o	150	Pipe/Conduit	
3.001	9.091	0.067	135.7	0.000	9	0.0	1.500	o	150	Pipe/Conduit	
3.002	21.109	1.003	21.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.004	14.522	0.108	134.5	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
1.005	21.267	0.792	26.9	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
4.000	33.000	0.244	135.2	0.000	8	0.0	1.500	o	150	Pipe/Conduit	
1.006	15.617	0.596	26.2	0.000	2	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	88.800	0.000	0.0	9	0.0	19	0.33	0.75	13.3	0.4
1.001	88.565	0.000	0.0	12	0.0	18	0.45	1.02	18.0	0.6
2.000	89.304	0.000	0.0	12	0.0	15	0.62	1.63	28.8	0.6
1.002	88.280	0.000	0.0	29	0.0	33	0.48	0.75	13.3	1.4
1.003	88.124	0.000	0.0	35	0.0	22	1.02	2.04	36.0	1.6
3.000	88.133	0.000	0.0	15	0.0	24	0.39	0.75	13.3	0.7
3.001	88.069	0.000	0.0	24	0.0	30	0.45	0.75	13.3	1.1
3.002	88.002	0.000	0.0	24	0.0	19	0.87	1.92	33.8	1.1
1.004	86.999	0.000	0.0	63	0.0	48	0.60	0.75	13.3	3.0
1.005	86.891	0.000	0.0	63	0.0	32	1.07	1.70	30.0	3.0
4.000	86.343	0.000	0.0	8	0.0	18	0.32	0.75	13.3	0.4
1.006	86.099	0.000	0.0	73	0.0	34	1.13	1.72	30.3	3.4

Coopers		Page 1
Park House Sandpiper Court Chester CH4 9QU	Edge Hill Phase 4	
Date 02/03/2023 File 7843 - FW01 REV H.MDX	Designed by PW Checked by	
Micro Drainage	Network 2020.1.3	

Network Design Table for 7843 FW01 REV H.FWS

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.007	22.479	0.875	25.7	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
1.008	34.934	1.229	28.4	0.000	8	0.0	1.500	o	150	Pipe/Conduit	
5.000	29.945	1.000	29.9	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
1.009	35.162	1.080	32.6	0.000	7	0.0	1.500	o	150	Pipe/Conduit	
1.010	28.841	2.160	13.4	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
1.011	22.958	0.169	135.8	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.012	20.274	0.966	21.0	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
1.013	73.300	5.134	14.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.014	15.878	2.241	7.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.015	24.706	2.548	9.7	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.016	73.734	3.820	19.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.017	18.067	0.638	28.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse (l/s)	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.007	85.503	0.000	0.0	75	0.0	34	1.15	1.73	30.6	3.5
1.008	84.628	0.000	0.0	83	0.0	37	1.14	1.65	29.1	3.9
5.000	84.400	0.000	0.0	4	0.0	9	0.43	1.60	28.4	0.2
1.009	83.400	0.000	0.0	94	0.0	41	1.13	1.54	27.2	4.4
1.010	82.320	0.000	0.0	98	0.0	33	1.56	2.41	42.5	4.6
1.011	80.160	0.000	0.0	98	0.0	61	0.68	0.75	13.3	4.6
1.012	79.991	0.000	0.0	102	0.0	38	1.35	1.92	33.9	4.8
1.013	79.025	0.000	0.0	102	0.0	35	1.54	2.33	41.1	4.8
1.014	73.891	0.000	0.0	102	0.0	29	1.97	3.31	58.4	4.8
1.015	71.650	0.000	0.0	102	0.0	32	1.77	2.82	49.9	4.8
1.016	69.102	0.000	0.0	102	0.0	37	1.39	2.00	35.3	4.8
1.017	65.282	0.000	0.0	102	0.0	41	1.21	1.65	29.2	4.8

Coopers		Page 2
Park House Sandpiper Court Chester CH4 9QU		Edge Hill Phase 4
Date 02/03/2023 File 7843 - FW01 REV H.MDX		Designed by PW Checked by
Micro Drainage		Network 2020.1.3



Manhole Schedules for 7843 FW01 REV H.FWS

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)
1	90.608	1.808	Open Manhole	1350	1.000	88.800	150				
2	90.661	2.096	Open Manhole	1350	1.001	88.565	150	1.000	88.565	150	
3	91.355	2.051	Open Manhole	1350	2.000	89.304	150				
4	90.550	2.270	Open Manhole	1350	1.002	88.280	150	1.001	88.280	150	
								2.000	88.280	150	
5	90.313	2.189	Open Manhole	1350	1.003	88.124	150	1.002	88.124	150	
6	89.733	1.600	Open Manhole	1350	3.000	88.133	150				
7	89.912	1.843	Open Manhole	1200	3.001	88.069	150	3.000	88.069	150	
8	90.049	2.047	Open Manhole	1350	3.002	88.002	150	3.001	88.002	150	
9	90.054	3.055	Open Manhole	1350	1.004	86.999	150	1.003	86.999	150	
								3.002	86.999	150	
10	89.526	2.635	Open Manhole	1350	1.005	86.891	150	1.004	86.891	150	
12	89.214	2.871	Open Manhole	1350	4.000	86.343	150				
13	88.475	2.376	Open Manhole	1350	1.006	86.099	150	1.005	86.099	150	
								4.000	86.099	150	
14	87.709	2.206	Open Manhole	1200	1.007	85.503	150	1.006	85.503	150	
15	86.760	2.132	Open Manhole	1350	1.008	84.628	150	1.007	84.628	150	
16	86.143	1.743	Open Manhole	1200	5.000	84.400	150				
17	86.517	3.118	Open Manhole	1350	1.009	83.400	150	1.008	83.399	150	
								5.000	83.400	150	
18	84.470	2.150	Open Manhole	1350	1.010	82.320	150	1.009	82.320	150	
19	81.611	1.451	Open Manhole	1350	1.011	80.160	150	1.010	80.160	150	
20	81.468	1.477	Open Manhole	1350	1.012	79.991	150	1.011	79.991	150	
21	80.375	1.350	Open Manhole	1350	1.013	79.025	150	1.012	79.025	150	
22	75.241	1.350	Open Manhole	1350	1.014	73.891	150	1.013	73.891	150	
23	73.000	1.350	Open Manhole	1350	1.015	71.650	150	1.014	71.650	150	
24	70.903	1.801	Open Manhole	1350	1.016	69.102	150	1.015	69.102	150	
25	67.094	1.812	Open Manhole	1350	1.017	65.282	150	1.016	65.282	150	
26	67.094	2.450	Open Manhole	1200		OUTFALL		1.017	64.644	150	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
---------	---------------------	----------------------	--------------------------	---------------------------	----------------	----------------

1	297270.075	515804.767	297270.075	515804.767	Required	
---	------------	------------	------------	------------	----------	--

2	297300.563	515813.317	297300.563	515813.317	Required	
---	------------	------------	------------	------------	----------	--

3	297318.909	515842.514	297318.909	515842.514	Required	
---	------------	------------	------------	------------	----------	--

4	297321.777	515812.955	297321.777	515812.955	Required	
---	------------	------------	------------	------------	----------	--



Coopers		Page 3
Park House Sandpiper Court Chester CH4 9QU	Edge Hill Phase 4	
Date 02/03/2023 File 7843 - FW01 REV H.MDX	Designed by PW Checked by	
Micro Drainage Network 2020.1.3		

Manhole Schedules for 7843 FW01 REV H.FWS

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
5	297341.524	515805.764	297341.524	515805.764	Required	
6	297386.772	515816.346	297386.772	515816.346	Required	
7	297382.972	515808.571	297382.972	515808.571	Required	
8	297376.852	515801.849	297376.852	515801.849	Required	
9	297357.845	515792.668	297357.845	515792.668	Required	
10	297365.788	515780.511	297365.788	515780.511	Required	
12	297342.065	515751.931	297342.065	515751.931	Required	
13	297373.843	515760.829	297373.843	515760.829	Required	
14	297381.190	515747.048	297381.190	515747.048	Required	
15	297392.467	515727.602	297392.467	515727.602	Required	
16	297341.106	515687.962	297341.106	515687.962	Required	
17	297364.812	515706.258	297364.812	515706.258	Required	
18	297386.220	515678.364	297386.220	515678.364	Required	
19	297408.102	515659.576	297408.102	515659.576	Required	
20	297425.493	515674.563	297425.493	515674.563	Required	
21	297443.037	515684.724	297443.037	515684.724	Required	
22	297486.992	515743.382	297486.992	515743.382	Required	
23	297502.821	515742.137	297502.821	515742.137	Required	

Manhole Schedules for 7843 FW01 REV H.FWS

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
24	297515.745	515763.192	297515.745	515763.192	Required	
25	297583.042	515793.323	297583.042	515793.323	Required	
26	297592.855	515808.493			No Entry	

Coopers		Page 5
Park House Sandpiper Court Chester CH4 9QU	Edge Hill Phase 4	
Date 02/03/2023 File 7843 - FW01 REV H.MDX	Designed by PW Checked by	
Micro Drainage	Network 2020.1.3	

PIPELINE SCHEDULES for 7843 FW01 REV H.FWS

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	150	1	90.608	88.800	1.658	Open Manhole	1350
1.001	o	150	2	90.661	88.565	1.946	Open Manhole	1350
2.000	o	150	3	91.355	89.304	1.901	Open Manhole	1350
1.002	o	150	4	90.550	88.280	2.120	Open Manhole	1350
1.003	o	150	5	90.313	88.124	2.039	Open Manhole	1350
3.000	o	150	6	89.733	88.133	1.450	Open Manhole	1350
3.001	o	150	7	89.912	88.069	1.693	Open Manhole	1200
3.002	o	150	8	90.049	88.002	1.897	Open Manhole	1350
1.004	o	150	9	90.054	86.999	2.905	Open Manhole	1350
1.005	o	150	10	89.526	86.891	2.485	Open Manhole	1350
4.000	o	150	12	89.214	86.343	2.721	Open Manhole	1350
1.006	o	150	13	88.475	86.099	2.226	Open Manhole	1350
1.007	o	150	14	87.709	85.503	2.056	Open Manhole	1200
1.008	o	150	15	86.760	84.628	1.982	Open Manhole	1350
5.000	o	150	16	86.143	84.400	1.593	Open Manhole	1200
1.009	o	150	17	86.517	83.400	2.967	Open Manhole	1350
1.010	o	150	18	84.470	82.320	2.000	Open Manhole	1350

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	31.664	134.7	2	90.661	88.565	1.946	Open Manhole	1350
1.001	21.217	74.4	4	90.550	88.280	2.120	Open Manhole	1350
2.000	29.698	29.0	4	90.550	88.280	2.120	Open Manhole	1350
1.002	21.016	134.7	5	90.313	88.124	2.039	Open Manhole	1350
1.003	20.926	18.6	9	90.054	86.999	2.905	Open Manhole	1350
3.000	8.654	135.2	7	89.912	88.069	1.693	Open Manhole	1200
3.001	9.091	135.7	8	90.049	88.002	1.897	Open Manhole	1350
3.002	21.109	21.0	9	90.054	86.999	2.905	Open Manhole	1350
1.004	14.522	134.5	10	89.526	86.891	2.485	Open Manhole	1350
1.005	21.267	26.9	13	88.475	86.099	2.226	Open Manhole	1350
4.000	33.000	135.2	13	88.475	86.099	2.226	Open Manhole	1350
1.006	15.617	26.2	14	87.709	85.503	2.056	Open Manhole	1200
1.007	22.479	25.7	15	86.760	84.628	1.982	Open Manhole	1350
1.008	34.934	28.4	17	86.517	83.399	2.968	Open Manhole	1350
5.000	29.945	29.9	17	86.517	83.400	2.967	Open Manhole	1350
1.009	35.162	32.6	18	84.470	82.320	2.000	Open Manhole	1350
1.010	28.841	13.4	19	81.611	80.160	1.301	Open Manhole	1350

Coopers		Page 6
Park House Sandpiper Court Chester CH4 9QU	Edge Hill Phase 4	
Date 02/03/2023 File 7843 - FW01 REV H.MDX	Designed by PW Checked by	
Micro Drainage	Network 2020.1.3	

PIPELINE SCHEDULES for 7843 FW01 REV H.FWS

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)
1.011	o	150	19	81.611	80.160	1.301	Open Manhole	1350
1.012	o	150	20	81.468	79.991	1.327	Open Manhole	1350
1.013	o	150	21	80.375	79.025	1.200	Open Manhole	1350
1.014	o	150	22	75.241	73.891	1.200	Open Manhole	1350
1.015	o	150	23	73.000	71.650	1.200	Open Manhole	1350
1.016	o	150	24	70.903	69.102	1.651	Open Manhole	1350
1.017	o	150	25	67.094	65.282	1.662	Open Manhole	1350

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)
1.011	22.958	135.8	20	81.468	79.991	1.327	Open Manhole	1350
1.012	20.274	21.0	21	80.375	79.025	1.200	Open Manhole	1350
1.013	73.300	14.3	22	75.241	73.891	1.200	Open Manhole	1350
1.014	15.878	7.1	23	73.000	71.650	1.200	Open Manhole	1350
1.015	24.706	9.7	24	70.903	69.102	1.651	Open Manhole	1350
1.016	73.734	19.3	25	67.094	65.282	1.662	Open Manhole	1350
1.017	18.067	28.3	26	67.094	64.644	2.300	Open Manhole	1200

Free Flowing Outfall Details for 7843 FW01 REV H.FWS

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.017		26	67.094	64.644	66.598	1200
						0

Coopers		Page 7
Park House Sandpiper Court Chester CH4 9QU	Edge Hill Phase 4	
Date 02/03/2023 File 7843 - FW01 REV H.MDX	Designed by PW Checked by	
Micro Drainage Network 2020.1.3		

Volume Summary (Static)

Length Calculations based on Centre-Centre

Pipe	USMH	Manhole	Pipe	Storage	Total
Number	Name	Volume (m³)	Volume (m³)	Structure	Volume (m³)
1.000	1	2.588	0.560	0.000	3.147
1.001	2	3.000	0.375	0.000	3.375
2.000	3	2.936	0.525	0.000	3.461
1.002	4	3.249	0.371	0.000	3.621
1.003	5	3.133	0.370	0.000	3.503
3.000	6	2.290	0.153	0.000	2.443
3.001	7	2.084	0.161	0.000	2.245
3.002	8	2.930	0.373	0.000	3.303
1.004	9	4.373	0.257	0.000	4.630
1.005	10	3.772	0.376	0.000	4.148
4.000	12	4.110	0.583	0.000	4.693
1.006	13	3.401	0.276	0.000	3.677
1.007	14	2.495	0.397	0.000	2.892
1.008	15	3.052	0.617	0.000	3.669
5.000	16	1.971	0.529	0.000	2.500
1.009	17	4.462	0.621	0.000	5.083
1.010	18	3.077	0.510	0.000	3.587
1.011	19	2.077	0.406	0.000	2.483
1.012	20	2.114	0.358	0.000	2.472
1.013	21	1.932	1.295	0.000	3.228
1.014	22	1.932	0.281	0.000	2.213
1.015	23	1.932	0.437	0.000	2.369
1.016	24	2.578	1.303	0.000	3.881
1.017	25	2.594	0.319	0.000	2.913
Total		68.083	11.452	0.000	79.535