

The Alan Johnston Partnership		Page 0
1 Dale Street Liverpool L2 2ET	220-248 Higher Road, Longridge Proposed S.W Network	
Date 01/01/0001 File 220-248 Proposed S.W Ne...	Designed by JCM Checked by JLS	
XP Solutions	Network 2020.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 220-248 PROPOSED S.W NETWORK REV B.SWS

Pipe Sizes 220-248 PROPOSED S.W NETWORK REV B
Manhole Sizes 220-248 PROPOSED S.W NETWORK REV B

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	18.900	Add Flow / Climate Change (%)	10
Ratio R	0.275	Minimum Backdrop Height (m)	0.000
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 220-248 PROPOSED S.W NETWORK REV B.SWS

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
1.000	45.519	1.821	25.0	0.218	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	39.162	1.566	25.0	0.105	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.000	30.508	2.487	12.3	0.106	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	27.711	2.309	12.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.003	20.081	1.673	12.0	0.059	0.00	0.0	0.600	o	300	Pipe/Conduit	
3.000	27.495	0.162	169.7	0.181	5.00	0.0	0.600	o	300	Pipe/Conduit	
3.001	13.069	0.077	169.7	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
3.002	16.414	0.097	169.2	0.000	0.00	0.0	0.600	o	375	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	50.00	5.29	141.800	0.218	0.0	0.0	3.0	2.63	104.5	32.5
1.001	50.00	5.54	139.979	0.323	0.0	0.0	4.4	2.63	104.5	48.1
2.000	50.00	5.14	140.900	0.106	0.0	0.0	1.4	3.76	149.4	15.8
1.002	50.00	5.64	138.338	0.429	0.0	0.0	5.8	4.56	322.5	63.9
1.003	50.00	5.71	136.029	0.488	0.0	0.0	6.6	4.56	322.5	72.7
3.000	50.00	5.38	132.275	0.181	0.0	0.0	2.5	1.20	85.1	27.0
3.001	50.00	5.56	132.113	0.181	0.0	0.0	2.5	1.20	85.1	27.0
3.002	50.00	5.76	131.961	0.181	0.0	0.0	2.5	1.39	153.5	27.0

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Network Design Table for 220-248 PROPOSED S.W NETWORK REV B.SWS

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
1.004	16.177	0.162	99.9	0.062	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.005	13.592	0.136	99.9	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.006	20.435	0.511	40.0	0.080	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.007	30.351	1.012	30.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.008	9.038	0.301	30.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.009	11.390	0.380	30.0	0.189	0.00	0.0	0.600	o	375	Pipe/Conduit	
4.000	33.491	2.233	15.0	0.057	5.00	0.0	0.600	o	225	Pipe/Conduit	
4.001	24.939	0.377	66.2	0.139	0.00	0.0	0.600	o	225	Pipe/Conduit	
4.002	34.549	2.879	12.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
4.003	7.482	0.624	12.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
4.004	13.961	1.300	10.7	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.010	11.486	0.884	13.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.011	12.139	0.934	13.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.012	14.437	1.203	12.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.013	14.441	0.975	14.8	0.060	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.014	17.016	0.038	450.0	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.015	52.468	0.117	450.0	0.083	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.016	52.338	0.116	450.0	0.153	0.00	0.0	0.600	o	600	Pipe/Conduit	
5.000	37.287	0.083	450.0	0.137	5.00	0.0	0.600	o	525	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)
1.004	50.00	5.91	131.864	0.731	0.0	0.0	9.9	1.81	200.3	108.9
1.005	50.00	6.03	131.702	0.731	0.0	0.0	9.9	1.81	200.2	108.9
1.006	50.00	6.15	131.566	0.811	0.0	0.0	11.0	2.87	317.3	120.8
1.007	50.00	6.30	131.055	0.811	0.0	0.0	11.0	3.32	366.6	120.8
1.008	49.91	6.35	130.043	0.811	0.0	0.0	11.0	3.32	366.4	120.8
1.009	49.72	6.41	129.742	1.000	0.0	0.0	13.5	3.32	366.7	148.1
4.000	50.00	5.16	136.925	0.057	0.0	0.0	0.8	3.40	135.0	8.5
4.001	50.00	5.42	134.692	0.196	0.0	0.0	2.7	1.61	64.0	29.2
4.002	50.00	5.57	134.315	0.196	0.0	0.0	2.7	3.80	151.0	29.2
4.003	50.00	5.61	131.436	0.196	0.0	0.0	2.7	3.80	151.1	29.2
4.004	50.00	5.66	130.737	0.196	0.0	0.0	2.7	4.82	341.0	29.2
1.010	49.62	6.44	129.287	1.196	0.0	0.0	16.1	5.66	900.7	176.8
1.011	49.50	6.48	128.403	1.196	0.0	0.0	16.1	5.66	900.6	176.8
1.012	49.38	6.52	127.469	1.196	0.0	0.0	16.1	5.89	937.3	176.8
1.013	49.24	6.56	126.266	1.256	0.0	0.0	16.7	5.30	843.5	184.2
1.014	48.48	6.81	125.141	1.256	0.0	0.0	16.7	1.14	322.7	184.2
1.015	46.33	7.58	125.103	1.339	0.0	0.0	16.8	1.14	322.7	184.8
1.016	44.41	8.34	124.986	1.492	0.0	0.0	17.9	1.14	322.7	197.4
5.000	50.00	5.59	125.028	0.137	0.0	0.0	1.9	1.05	227.2	20.4

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Network Design Table for 220-248 PROPOSED S.W NETWORK REV B.SWS

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
1.017	13.887	0.031	450.0	0.100	0.00	0.0	0.600	o	750	Pipe/Conduit	
1.018	72.797	0.162	449.4	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit	
1.019	91.625	0.204	449.1	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit	
1.020	34.995	0.078	449.8	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit	
6.000	34.917	0.205	170.3	0.130	5.00	0.0	0.600	o	300	Pipe/Conduit	
6.001	48.871	0.287	170.3	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
6.002	22.295	0.091	245.0	0.177	0.00	0.0	0.600	o	300	Pipe/Conduit	
6.003	31.852	0.130	245.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
6.004	14.932	0.061	244.8	0.107	0.00	0.0	0.600	o	300	Pipe/Conduit	
6.005	12.654	1.055	12.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
6.006	9.986	0.832	12.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
6.007	9.247	0.771	12.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
6.008	15.175	1.265	12.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
6.009	10.141	0.676	15.0	0.091	0.00	0.0	0.600	o	300	Pipe/Conduit	
7.000	14.714	0.087	169.1	0.120	5.00	0.0	0.600	o	225	Pipe/Conduit	
7.001	17.249	0.102	169.9	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
7.002	25.367	0.435	58.3	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
6.010	15.312	0.102	150.0	0.076	0.00	0.0	0.600	o	525	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)
1.017	44.00	8.52	124.720	1.729	0.0	0.0	20.6	1.31	579.9	226.6
1.018	41.97	9.44	124.689	1.729	0.0	0.0	20.6	1.31	580.3	226.6
1.019	39.73	10.60	124.500	1.729	0.0	0.0	20.6	1.31	580.5	226.6
1.020	38.95	11.05	124.296	1.729	0.0	0.0	20.6	1.31	580.0	226.6
6.000	50.00	5.48	130.600	0.130	0.0	0.0	1.8	1.20	85.0	19.4
6.001	50.00	6.16	130.395	0.130	0.0	0.0	1.8	1.20	85.0	19.4
6.002	49.32	6.53	130.108	0.307	0.0	0.0	4.1	1.00	70.7	45.1
6.003	47.74	7.06	130.017	0.307	0.0	0.0	4.1	1.00	70.7	45.1
6.004	47.04	7.31	129.887	0.414	0.0	0.0	5.3	1.00	70.7	58.0
6.005	46.92	7.36	129.826	0.414	0.0	0.0	5.3	4.56	322.6	58.0
6.006	46.82	7.40	128.771	0.414	0.0	0.0	5.3	4.56	322.5	58.0
6.007	46.73	7.43	127.939	0.414	0.0	0.0	5.3	4.56	322.6	58.0
6.008	46.58	7.48	127.168	0.414	0.0	0.0	5.3	4.56	322.6	58.0
6.009	46.47	7.53	125.903	0.505	0.0	0.0	6.4	4.08	288.4	69.9
7.000	50.00	5.24	125.925	0.120	0.0	0.0	1.6	1.00	39.9	17.9
7.001	50.00	5.53	125.838	0.120	0.0	0.0	1.6	1.00	39.8	17.9
7.002	50.00	5.78	125.737	0.120	0.0	0.0	1.6	1.72	68.2	17.9
6.010	46.10	7.67	125.002	0.701	0.0	0.0	8.8	1.83	395.4	96.3

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Network Design Table for 220-248 PROPOSED S.W NETWORK REV B.SWS

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
1.021	19.532	0.049	400.0	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit	
1.022	23.188	0.058	400.0	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit	
1.023	37.139	3.095	12.0	0.000	0.00	0.0	0.600	o	300	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)
1.021	38.55	11.28	124.219	2.430	0.0	0.0	25.4	1.39	615.4	279.1
1.022	38.10	11.56	124.000	2.430	0.0	0.0	25.4	1.39	615.4	279.1
1.023	37.88	11.69	123.942	2.430	0.0	0.0	25.4	4.56	322.5	279.1

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Manhole Schedules for 220-248 PROPOSED S.W NETWORK REV B.SWS

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
25	143.240	1.440	Open Manhole	1200	1.000	141.800	225				
24	141.453	1.474	Open Manhole	1200	1.001	139.979	225	1.000	139.979	225	
26	142.696	1.796	Open Manhole	1200	2.000	140.900	225				
23	140.157	1.819	Open Manhole	1500	1.002	138.338	300	1.001	138.413	225	
								2.000	138.413	225	
22	137.840	1.811	Open Manhole	1500	1.003	136.029	300	1.002	136.029	300	
29	133.926	1.651	Open Manhole	1200	3.000	132.275	300				
28	134.790	2.677	Open Manhole	1500	3.001	132.113	300	3.000	132.113	300	
27	135.207	3.246	Open Manhole	1800	3.002	131.961	375	3.001	132.036	300	
21	136.145	4.281	Open Manhole	1800	1.004	131.864	375	1.003	134.356	300	2417
								3.002	131.864	375	
20	135.228	3.526	Open Manhole	1800	1.005	131.702	375	1.004	131.702	375	
19	134.139	2.573	Open Manhole	1800	1.006	131.566	375	1.005	131.566	375	
18	132.632	1.577	Open Manhole	1800	1.007	131.055	375	1.006	131.055	375	
17	131.548	1.505	Open Manhole	1800	1.008	130.043	375	1.007	130.043	375	
16	131.245	1.503	Open Manhole	1800	1.009	129.742	375	1.008	129.742	375	
34	138.673	1.748	Open Manhole	1200	4.000	136.925	225				
33	136.560	1.868	Open Manhole	1200	4.001	134.692	225	4.000	134.692	225	
32	137.500	3.185	Open Manhole	1200	4.002	134.315	225	4.001	134.315	225	
31	133.073	1.637	Open Manhole	1200	4.003	131.436	225	4.002	131.436	225	
30	132.085	1.348	Open Manhole	1500	4.004	130.737	300	4.003	130.812	225	
15	130.833	1.546	Open Manhole	1800	1.010	129.287	450	1.009	129.362	375	
								4.004	129.437	300	
14	130.139	1.736	Open Manhole	1800	1.011	128.403	450	1.010	128.403	450	
13	129.126	1.657	Open Manhole	1800	1.012	127.469	450	1.011	127.469	450	
12	127.888	1.622	Open Manhole	2100	1.013	126.266	450	1.012	126.266	450	
11	126.845	1.704	Open Manhole	2100	1.014	125.141	600	1.013	125.291	450	
10	126.649	1.546	Open Manhole	2100	1.015	125.103	600	1.014	125.103	600	
9	126.615	1.629	Open Manhole	2100	1.016	124.986	600	1.015	124.986	600	
35	126.510	1.482	Open Manhole	2100	5.000	125.028	525				
8	126.618	1.898	Open Manhole	2100	1.017	124.720	750	1.016	124.870	600	
								5.000	124.945	525	
7	125.500	0.811	Open Manhole	2100	1.018	124.689	750	1.017	124.689	750	
6	125.500	1.000	Open Manhole	2100	1.019	124.500	750	1.018	124.527	750	27
5	125.500	1.204	Open Manhole	2100	1.020	124.296	750	1.019	124.296	750	
46	132.373	1.773	Open Manhole	1500	6.000	130.600	300				
45	133.081	2.686	Open Manhole	1500	6.001	130.395	300	6.000	130.395	300	
44	134.074	3.966	Open Manhole	1500	6.002	130.108	300	6.001	130.108	300	

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Manhole Schedules for 220-248 PROPOSED S.W NETWORK REV B.SWS

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)
43	134.485	4.468	Open Manhole	1500	6.003	130.017	300	6.002	130.017	300	
42	132.526	2.639	Open Manhole	1500	6.004	129.887	300	6.003	129.887	300	
41	131.323	1.497	Open Manhole	1500	6.005	129.826	300	6.004	129.826	300	
40	130.305	1.534	Open Manhole	1500	6.006	128.771	300	6.005	128.771	300	
39	129.510	1.571	Open Manhole	1500	6.007	127.939	300	6.006	127.939	300	
38	128.772	1.604	Open Manhole	1500	6.008	127.168	300	6.007	127.168	300	
37	127.572	1.669	Open Manhole	1500	6.009	125.903	300	6.008	125.903	300	
49	127.670	1.745	Open Manhole	1200	7.000	125.925	225				
48	127.498	1.660	Open Manhole	1200	7.001	125.838	225	7.000	125.838	225	
47	127.305	1.569	Open Manhole	1200	7.002	125.737	225	7.001	125.737	225	
36	127.132	2.130	Open Manhole	2100	6.010	125.002	525	6.009	125.227	300	
								7.002	125.302	225	
4	125.500	1.281	Open Manhole	2400	1.021	124.219	750	1.020	124.219	750	
								6.010	124.900	525	456
3	125.500	1.500	Open Manhole	2400	1.022	124.000	750	1.021	124.170	750	170
2	125.500	1.558	Open Manhole	2400	1.023	123.942	300	1.022	123.942	750	
1	122.630	1.783	Open Manhole	1500		OUTFALL		1.023	120.847	300	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
25	361112.290	437587.963	361112.290	437587.963	Required	
24	361081.769	437554.193	361081.769	437554.193	Required	
26	361032.836	437545.827	361032.836	437545.827	Required	
23	361055.372	437525.264	361055.372	437525.264	Required	
22	361076.411	437507.230	361076.411	437507.230	Required	
29	361145.772	437526.627	361145.772	437526.627	Required	

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Manhole Schedules for 220-248 PROPOSED S.W NETWORK REV B.SWS

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
28	361123.514	437510.486	361123.514	437510.486	Required	
27	361111.797	437504.698	361111.797	437504.698	Required	
21	361095.682	437501.581	361095.682	437501.581	Required	
20	361091.761	437485.887	361091.761	437485.887	Required	
19	361084.557	437474.361	361084.557	437474.361	Required	
18	361069.168	437460.917	361069.168	437460.917	Required	
17	361043.512	437444.701	361043.512	437444.701	Required	
16	361035.785	437440.012	361035.785	437440.012	Required	
34	361022.811	437503.881	361022.811	437503.881	Required	
33	361000.450	437478.948	361000.450	437478.948	Required	
32	360983.787	437460.393	360983.787	437460.393	Required	
31	361009.463	437437.276	361009.463	437437.276	Required	
30	361015.096	437432.353	361015.096	437432.353	Required	
15	361028.979	437430.879	361028.979	437430.879	Required	
14	361027.145	437419.541	361027.145	437419.541	Required	

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Manhole Schedules for 220-248 PROPOSED S.W NETWORK REV B.SWS

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
13	361030.956	437408.016	361030.956	437408.016	Required	
12	361040.992	437397.638	361040.992	437397.638	Required	
11	361054.740	437393.216	361054.740	437393.216	Required	
10	361071.386	437396.741	361071.386	437396.741	Required	
9	361111.343	437430.746	361111.343	437430.746	Required	
35	361182.613	437485.044	361182.613	437485.044	Required	
8	361152.293	437463.341	361152.293	437463.341	Required	
7	361161.051	437452.564	361161.051	437452.564	Required	
6	361221.839	437492.618	361221.839	437492.618	Required	
5	361299.219	437541.684	361299.219	437541.684	Required	
46	361199.938	437564.873	361199.938	437564.873	Required	
45	361228.676	437584.704	361228.676	437584.704	Required	
44	361270.205	437610.469	361270.205	437610.469	Required	
43	361291.400	437617.385	361291.400	437617.385	Required	
42	361323.244	437618.124	361323.244	437618.124	Required	

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PIPELINE SCHEDULES for 220-248 PROPOSED S.W NETWORK REV B.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	25	143.240	141.800	1.215	Open Manhole	1200
1.001	o	225	24	141.453	139.979	1.249	Open Manhole	1200
2.000	o	225	26	142.696	140.900	1.571	Open Manhole	1200
1.002	o	300	23	140.157	138.338	1.519	Open Manhole	1500
1.003	o	300	22	137.840	136.029	1.511	Open Manhole	1500
3.000	o	300	29	133.926	132.275	1.351	Open Manhole	1200
3.001	o	300	28	134.790	132.113	2.377	Open Manhole	1500
3.002	o	375	27	135.207	131.961	2.871	Open Manhole	1800
1.004	o	375	21	136.145	131.864	3.906	Open Manhole	1800
1.005	o	375	20	135.228	131.702	3.151	Open Manhole	1800
1.006	o	375	19	134.139	131.566	2.198	Open Manhole	1800
1.007	o	375	18	132.632	131.055	1.202	Open Manhole	1800
1.008	o	375	17	131.548	130.043	1.130	Open Manhole	1800
1.009	o	375	16	131.245	129.742	1.128	Open Manhole	1800
4.000	o	225	34	138.673	136.925	1.523	Open Manhole	1200
4.001	o	225	33	136.560	134.692	1.643	Open Manhole	1200

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	45.519	25.0	24	141.453	139.979	1.249	Open Manhole	1200
1.001	39.162	25.0	23	140.157	138.413	1.519	Open Manhole	1500
2.000	30.508	12.3	23	140.157	138.413	1.519	Open Manhole	1500
1.002	27.711	12.0	22	137.840	136.029	1.511	Open Manhole	1500
1.003	20.081	12.0	21	136.145	134.356	1.489	Open Manhole	1800
3.000	27.495	169.7	28	134.790	132.113	2.377	Open Manhole	1500
3.001	13.069	169.7	27	135.207	132.036	2.871	Open Manhole	1800
3.002	16.414	169.2	21	136.145	131.864	3.906	Open Manhole	1800
1.004	16.177	99.9	20	135.228	131.702	3.151	Open Manhole	1800
1.005	13.592	99.9	19	134.139	131.566	2.198	Open Manhole	1800
1.006	20.435	40.0	18	132.632	131.055	1.202	Open Manhole	1800
1.007	30.351	30.0	17	131.548	130.043	1.130	Open Manhole	1800
1.008	9.038	30.0	16	131.245	129.742	1.128	Open Manhole	1800
1.009	11.390	30.0	15	130.833	129.362	1.096	Open Manhole	1800
4.000	33.491	15.0	33	136.560	134.692	1.643	Open Manhole	1200
4.001	24.939	66.2	32	137.500	134.315	2.960	Open Manhole	1200

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PIPELINE SCHEDULES for 220-248 PROPOSED S.W NETWORK REV B.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)
4.002	o	225	32	137.500	134.315	2.960	Open Manhole	1200
4.003	o	225	31	133.073	131.436	1.412	Open Manhole	1200
4.004	o	300	30	132.085	130.737	1.048	Open Manhole	1500
1.010	o	450	15	130.833	129.287	1.096	Open Manhole	1800
1.011	o	450	14	130.139	128.403	1.286	Open Manhole	1800
1.012	o	450	13	129.126	127.469	1.207	Open Manhole	1800
1.013	o	450	12	127.888	126.266	1.172	Open Manhole	2100
1.014	o	600	11	126.845	125.141	1.104	Open Manhole	2100
1.015	o	600	10	126.649	125.103	0.946	Open Manhole	2100
1.016	o	600	9	126.615	124.986	1.029	Open Manhole	2100
5.000	o	525	35	126.510	125.028	0.957	Open Manhole	2100
1.017	o	750	8	126.618	124.720	1.148	Open Manhole	2100
1.018	o	750	7	125.500	124.689	0.061	Open Manhole	2100
1.019	o	750	6	125.500	124.500	0.250	Open Manhole	2100
1.020	o	750	5	125.500	124.296	0.454	Open Manhole	2100
6.000	o	300	46	132.373	130.600	1.473	Open Manhole	1500
6.001	o	300	45	133.081	130.395	2.386	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)
4.002	34.549	12.0	31	133.073	131.436	1.412	Open Manhole	1200
4.003	7.482	12.0	30	132.085	130.812	1.048	Open Manhole	1500
4.004	13.961	10.7	15	130.833	129.437	1.096	Open Manhole	1800
1.010	11.486	13.0	14	130.139	128.403	1.286	Open Manhole	1800
1.011	12.139	13.0	13	129.126	127.469	1.207	Open Manhole	1800
1.012	14.437	12.0	12	127.888	126.266	1.172	Open Manhole	2100
1.013	14.441	14.8	11	126.845	125.291	1.104	Open Manhole	2100
1.014	17.016	450.0	10	126.649	125.103	0.946	Open Manhole	2100
1.015	52.468	450.0	9	126.615	124.986	1.029	Open Manhole	2100
1.016	52.338	450.0	8	126.618	124.870	1.148	Open Manhole	2100
5.000	37.287	450.0	8	126.618	124.945	1.148	Open Manhole	2100
1.017	13.887	450.0	7	125.500	124.689	0.061	Open Manhole	2100
1.018	72.797	449.4	6	125.500	124.527	0.223	Open Manhole	2100
1.019	91.625	449.1	5	125.500	124.296	0.454	Open Manhole	2100
1.020	34.995	449.8	4	125.500	124.219	0.531	Open Manhole	2400
6.000	34.917	170.3	45	133.081	130.395	2.386	Open Manhole	1500
6.001	48.871	170.3	44	134.074	130.108	3.666	Open Manhole	1500

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PIPELINE SCHEDULES for 220-248 PROPOSED S.W NETWORK REV B.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)
6.002	o	300	44	134.074	130.108	3.666	Open Manhole	1500
6.003	o	300	43	134.485	130.017	4.168	Open Manhole	1500
6.004	o	300	42	132.526	129.887	2.339	Open Manhole	1500
6.005	o	300	41	131.323	129.826	1.197	Open Manhole	1500
6.006	o	300	40	130.305	128.771	1.234	Open Manhole	1500
6.007	o	300	39	129.510	127.939	1.271	Open Manhole	1500
6.008	o	300	38	128.772	127.168	1.304	Open Manhole	1500
6.009	o	300	37	127.572	125.903	1.369	Open Manhole	1500
7.000	o	225	49	127.670	125.925	1.520	Open Manhole	1200
7.001	o	225	48	127.498	125.838	1.435	Open Manhole	1200
7.002	o	225	47	127.305	125.737	1.343	Open Manhole	1200
6.010	o	525	36	127.132	125.002	1.605	Open Manhole	2100
1.021	o	750	4	125.500	124.219	0.531	Open Manhole	2400
1.022	o	750	3	125.500	124.000	0.750	Open Manhole	2400
1.023	o	300	2	125.500	123.942	1.258	Open Manhole	2400

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)
6.002	22.295	245.0	43	134.485	130.017	4.168	Open Manhole	1500
6.003	31.852	245.0	42	132.526	129.887	2.339	Open Manhole	1500
6.004	14.932	244.8	41	131.323	129.826	1.197	Open Manhole	1500
6.005	12.654	12.0	40	130.305	128.771	1.234	Open Manhole	1500
6.006	9.986	12.0	39	129.510	127.939	1.271	Open Manhole	1500
6.007	9.247	12.0	38	128.772	127.168	1.304	Open Manhole	1500
6.008	15.175	12.0	37	127.572	125.903	1.369	Open Manhole	1500
6.009	10.141	15.0	36	127.132	125.227	1.605	Open Manhole	2100
7.000	14.714	169.1	48	127.498	125.838	1.435	Open Manhole	1200
7.001	17.249	169.9	47	127.305	125.737	1.344	Open Manhole	1200
7.002	25.367	58.3	36	127.132	125.302	1.605	Open Manhole	2100
6.010	15.312	150.0	4	125.500	124.900	0.075	Open Manhole	2400
1.021	19.532	400.0	3	125.500	124.170	0.580	Open Manhole	2400
1.022	23.188	400.0	2	125.500	123.942	0.808	Open Manhole	2400
1.023	37.139	12.0	1	122.630	120.847	1.483	Open Manhole	1500

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Online Controls for 220-248 PROPOSED S.W NETWORK REV B.SWS

Hydro-Brake® Optimum Manhole: 2, DS/PN: 1.023, Volume (m³): 16.2

Unit Reference	MD-SHE-0296-5300-1500-5300
Design Head (m)	1.500
Design Flow (l/s)	53.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	296
Invert Level (m)	123.942
Minimum Outlet Pipe Diameter (mm)	375
Suggested Manhole Diameter (mm)	2100

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	53.0
Flush-Flo™	0.512	53.0
Kick-Flo®	1.075	45.2
Mean Flow over Head Range	-	44.7

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)
0.100	9.1	1.200	47.6	3.000	74.1	7.000	111.9
0.200	30.5	1.400	51.3	3.500	79.9	7.500	115.8
0.300	50.5	1.600	54.7	4.000	85.2	8.000	119.5
0.400	52.4	1.800	57.9	4.500	90.2	8.500	123.1
0.500	53.0	2.000	60.9	5.000	95.0	9.000	126.5
0.600	52.8	2.200	63.8	5.500	99.5	9.500	129.9
0.800	51.3	2.400	66.5	6.000	103.8		
1.000	47.9	2.600	69.1	6.500	107.9		

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Storage Structures for 220-248 PROPOSED S.W NETWORK REV B.SWS

Tank or Pond Manhole: 6, DS/PN: 1.019

Invert Level (m) 124.500

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	1128.0	0.300	1454.0	0.600	1789.0	0.900	2134.0
0.100	1236.0	0.400	1565.0	0.700	1903.0	1.000	2250.0
0.200	1345.0	0.500	1677.0	0.800	2018.0	1.100	0.0

Tank or Pond Manhole: 3, DS/PN: 1.022

Invert Level (m) 124.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	482.0	0.500	752.0	0.900	985.0	1.300	1261.0
0.200	581.0	0.600	812.0	1.000	1062.0	1.400	1329.0
0.300	635.0	0.700	873.0	1.100	1127.0	1.500	1398.0
0.400	693.0	0.800	935.0	1.200	1193.0	1.600	0.0

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for 220-248 PROPOSED S.W NETWORK REV B.SWS

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	10.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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 Storage Structures	2
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.275
Region England and Wales Cv (Summer)			0.750
M5-60 (mm)	18.900	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep		Fine Inertia Status	ON
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)	2, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	25 15 Winter		2	+0%	100/15 Summer			
1.001	24 15 Winter		2	+0%	30/15 Winter	100/15 Summer		
2.000	26 15 Winter		2	+0%				
1.002	23 15 Winter		2	+0%				
1.003	22 15 Winter		2	+0%				
3.000	29 15 Winter		2	+0%	30/15 Summer	100/15 Winter		
3.001	28 15 Winter		2	+0%	30/15 Summer			
3.002	27 15 Winter		2	+0%	30/15 Summer			
1.004	21 15 Winter		2	+0%	30/15 Summer			
1.005	20 15 Winter		2	+0%	30/15 Summer			
1.006	19 15 Winter		2	+0%	100/15 Summer			
1.007	18 15 Winter		2	+0%	100/15 Summer			
1.008	17 15 Winter		2	+0%	30/15 Winter			
1.009	16 15 Winter		2	+0%	30/15 Winter			
4.000	34 15 Winter		2	+0%				
4.001	33 15 Winter		2	+0%	30/15 Summer			
4.002	32 15 Winter		2	+0%				
4.003	31 15 Winter		2	+0%				
4.004	30 15 Winter		2	+0%				
1.010	15 15 Winter		2	+0%				

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for 220-248 PROPOSED S.W NETWORK REV B.SWS

PN	US/MH Name	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status	Level Exceeded
		Level (m)	Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)		
1.000	25	141.894	-0.131	0.000	0.36			35.6	OK	2
1.001	24	140.094	-0.110	0.000	0.51			50.3	OK	
2.000	26	140.953	-0.172	0.000	0.13			17.5	OK	
1.002	23	138.436	-0.202	0.000	0.23			67.7	OK	2
1.003	22	136.136	-0.193	0.000	0.27			76.1	OK	
3.000	29	132.405	-0.170	0.000	0.38			29.3	OK	
3.001	28	132.250	-0.163	0.000	0.43			29.6	OK	
3.002	27	132.126	-0.210	0.000	0.24			29.5	OK	
1.004	21	132.101	-0.138	0.000	0.72			112.9	OK	
1.005	20	131.955	-0.122	0.000	0.78			113.1	OK	
1.006	19	131.746	-0.195	0.000	0.46			123.7	OK	
1.007	18	131.215	-0.215	0.000	0.38			123.8	OK	
1.008	17	130.247	-0.171	0.000	0.57			123.4	OK	
1.009	16	129.954	-0.163	0.000	0.61			146.3	OK	
4.000	34	136.966	-0.184	0.000	0.07			9.4	OK	
4.001	33	134.804	-0.113	0.000	0.49			28.7	OK	
4.002	32	134.384	-0.156	0.000	0.20			28.8	OK	
4.003	31	131.514	-0.147	0.000	0.26			28.9	OK	
4.004	30	130.801	-0.236	0.000	0.10			29.0	OK	
1.010	15	129.464	-0.273	0.000	0.33			173.5	OK	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for 220-248 PROPOSED S.W NETWORK REV B.SWS

	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Water
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level (m)
1.011	14	15 Winter	2	+0%					128.577
1.012	13	15 Winter	2	+0%					127.631
1.013	12	15 Winter	2	+0%	100/15 Summer				126.442
1.014	11	15 Winter	2	+0%	30/15 Summer				125.579
1.015	10	15 Winter	2	+0%	30/15 Summer				125.466
1.016	9	15 Winter	2	+0%	30/15 Summer				125.351
5.000	35	30 Winter	2	+0%	100/15 Summer				125.164
1.017	8	15 Winter	2	+0%	100/15 Summer				125.161
1.018	7	15 Winter	2	+0%	100/15 Winter				125.010
1.019	6	180 Winter	2	+0%					124.655
1.020	5	180 Winter	2	+0%					124.480
6.000	46	15 Winter	2	+0%	100/15 Summer				130.707
6.001	45	15 Winter	2	+0%	100/15 Summer				130.500
6.002	44	15 Winter	2	+0%	30/15 Summer				130.297
6.003	43	15 Winter	2	+0%	30/15 Summer				130.198
6.004	42	15 Winter	2	+0%	30/15 Summer				130.116
6.005	41	15 Winter	2	+0%					129.920
6.006	40	15 Winter	2	+0%					128.871
6.007	39	15 Winter	2	+0%					128.041
6.008	38	15 Winter	2	+0%					127.260
6.009	37	15 Winter	2	+0%	100/15 Winter				126.019
7.000	49	15 Winter	2	+0%	30/15 Winter				126.047
7.001	48	15 Winter	2	+0%	100/15 Summer				125.958
7.002	47	15 Winter	2	+0%	100/15 Winter				125.822
6.010	36	15 Winter	2	+0%	100/15 Summer				125.221
1.021	4	15 Winter	2	+0%					124.442
1.022	3	240 Winter	2	+0%	100/120 Summer				124.251
1.023	2	240 Winter	2	+0%	30/30 Summer				124.235

		Surcharged	Flooded		Half Drain	Pipe		
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	Status	Level Exceeded
1.011	14	-0.276	0.000	0.32		172.6	OK	
1.012	13	-0.288	0.000	0.28		172.7	OK	
1.013	12	-0.274	0.000	0.32		180.2	OK	
1.014	11	-0.162	0.000	0.88		179.6	OK	
1.015	10	-0.237	0.000	0.64		182.6	OK	
1.016	9	-0.235	0.000	0.66		188.3	OK	
5.000	35	-0.389	0.000	0.09		18.0	OK	
1.017	8	-0.309	0.000	0.65		195.6	OK	
1.018	7	-0.429	0.000	0.38		196.1	OK	
1.019	6	-0.595	0.000	0.09		48.2	OK	
1.020	5	-0.566	0.000	0.10		48.3	OK	
6.000	46	-0.193	0.000	0.27		21.1	OK	
6.001	45	-0.195	0.000	0.26		20.4	OK	
6.002	44	-0.111	0.000	0.70		43.9	OK	

The Alan Johnston Partnership		Page 18
1 Dale Street Liverpool L2 2ET	220-248 Higher Road, Longridge Proposed S.W Network	
Date 01/01/0001 File 220-248 Proposed S.W Ne...	Designed by JCM Checked by JLS	
XP Solutions	Network 2020.1	

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for 220-248 PROPOSED S.W NETWORK REV B.SWS

PN	US/MH Name	Surcharged Flooded		Flow / Overflow		Half Drain	Pipe	Status	Level Exceeded
		Depth (m)	Volume (m ³)	Cap.	(l/s)	Time (mins)	Flow (l/s)		
6.003	43	-0.119	0.000	0.67			43.1	OK	
6.004	42	-0.071	0.000	0.94			55.4	OK	
6.005	41	-0.206	0.000	0.22			55.4	OK	
6.006	40	-0.200	0.000	0.24			55.2	OK	
6.007	39	-0.198	0.000	0.25			55.0	OK	
6.008	38	-0.208	0.000	0.20			55.3	OK	
6.009	37	-0.184	0.000	0.31			64.2	OK	
7.000	49	-0.103	0.000	0.56			19.5	OK	
7.001	48	-0.105	0.000	0.55			19.7	OK	
7.002	47	-0.140	0.000	0.31			19.5	OK	
6.010	36	-0.306	0.000	0.36			89.4	OK	
1.021	4	-0.527	0.000	0.19			82.6	OK	
1.022	3	-0.499	0.000	0.11			50.2	OK	
1.023	2	-0.007	0.000	0.17			50.2	OK	

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1 Dale Street Liverpool L2 2ET	220-248 Higher Road, Longridge Proposed S.W Network	
Date 01/01/0001 File 220-248 Proposed S.W Ne...	Designed by JCM Checked by JLS	
XP Solutions Network 2020.1		

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for 220-248 PROPOSED S.W NETWORK REV B.SWS

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	10.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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 Storage Structures	2
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.275
Region England and Wales	Cv (Summer)		0.750
M5-60 (mm)	18.900	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep		Fine Inertia Status	ON
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)	2, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	25 15	Winter	30	+0%	100/15	Summer		
1.001	24 15	Winter	30	+0%	30/15	Winter	100/15	Summer
2.000	26 15	Winter	30	+0%				
1.002	23 15	Winter	30	+0%				
1.003	22 15	Winter	30	+0%				
3.000	29 15	Winter	30	+0%	30/15	Summer	100/15	Winter
3.001	28 15	Winter	30	+0%	30/15	Summer		
3.002	27 15	Winter	30	+0%	30/15	Summer		
1.004	21 15	Winter	30	+0%	30/15	Summer		
1.005	20 15	Winter	30	+0%	30/15	Summer		
1.006	19 15	Winter	30	+0%	100/15	Summer		
1.007	18 15	Winter	30	+0%	100/15	Summer		
1.008	17 15	Winter	30	+0%	30/15	Winter		
1.009	16 15	Winter	30	+0%	30/15	Winter		
4.000	34 15	Winter	30	+0%				
4.001	33 15	Winter	30	+0%	30/15	Summer		
4.002	32 15	Winter	30	+0%				
4.003	31 15	Winter	30	+0%				
4.004	30 15	Winter	30	+0%				
1.010	15 15	Winter	30	+0%				

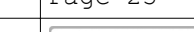
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The Alan Johnston Partnership								Page 21																																																																																																																																																																																																																																																																																																												
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<table><tr><th colspan="2">US/MH</th><th colspan="2">Return Climate</th><th>First (X)</th><th>First (Y)</th><th>First (Z)</th><th>Overflow</th><th>Water</th></tr><tr><th>PN</th><th>Name</th><th>Storm</th><th>Period</th><th>Change</th><th>Surcharge</th><th>Flood</th><th>Overflow</th><th>Act.</th><th>Level (m)</th></tr><tr><td>1.011</td><td>14</td><td>15 Winter</td><td>30</td><td>+0%</td><td></td><td></td><td></td><td></td><td>128.646</td></tr><tr><td>1.012</td><td>13</td><td>15 Winter</td><td>30</td><td>+0%</td><td></td><td></td><td></td><td></td><td>127.695</td></tr><tr><td>1.013</td><td>12</td><td>15 Winter</td><td>30</td><td>+0%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>126.514</td></tr><tr><td>1.014</td><td>11</td><td>15 Winter</td><td>30</td><td>+0%</td><td>30/15 Summer</td><td></td><td></td><td></td><td>125.841</td></tr><tr><td>1.015</td><td>10</td><td>15 Winter</td><td>30</td><td>+0%</td><td>30/15 Summer</td><td></td><td></td><td></td><td>125.772</td></tr><tr><td>1.016</td><td>9</td><td>15 Winter</td><td>30</td><td>+0%</td><td>30/15 Summer</td><td></td><td></td><td></td><td>125.619</td></tr><tr><td>5.000</td><td>35</td><td>30 Winter</td><td>30</td><td>+0%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>125.516</td></tr><tr><td>1.017</td><td>8</td><td>15 Winter</td><td>30</td><td>+0%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>125.466</td></tr><tr><td>1.018</td><td>7</td><td>30 Winter</td><td>30</td><td>+0%</td><td>100/15 Winter</td><td></td><td></td><td></td><td>125.128</td></tr><tr><td>1.019</td><td>6</td><td>120 Winter</td><td>30</td><td>+0%</td><td></td><td></td><td></td><td></td><td>124.747</td></tr><tr><td>1.020</td><td>5</td><td>240 Winter</td><td>30</td><td>+0%</td><td></td><td></td><td></td><td></td><td>124.619</td></tr><tr><td>6.000</td><td>46</td><td>15 Winter</td><td>30</td><td>+0%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>130.754</td></tr><tr><td>6.001</td><td>45</td><td>15 Winter</td><td>30</td><td>+0%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>130.659</td></tr><tr><td>6.002</td><td>44</td><td>15 Winter</td><td>30</td><td>+0%</td><td>30/15 Summer</td><td></td><td></td><td></td><td>130.601</td></tr><tr><td>6.003</td><td>43</td><td>15 Winter</td><td>30</td><td>+0%</td><td>30/15 Summer</td><td></td><td></td><td></td><td>130.466</td></tr><tr><td>6.004</td><td>42</td><td>15 Winter</td><td>30</td><td>+0%</td><td>30/15 Summer</td><td></td><td></td><td></td><td>130.291</td></tr><tr><td>6.005</td><td>41</td><td>15 Winter</td><td>30</td><td>+0%</td><td></td><td></td><td></td><td></td><td>129.955</td></tr><tr><td>6.006</td><td>40</td><td>15 Winter</td><td>30</td><td>+0%</td><td></td><td></td><td></td><td></td><td>128.908</td></tr><tr><td>6.007</td><td>39</td><td>15 Winter</td><td>30</td><td>+0%</td><td></td><td></td><td></td><td></td><td>128.079</td></tr><tr><td>6.008</td><td>38</td><td>15 Winter</td><td>30</td><td>+0%</td><td></td><td></td><td></td><td></td><td>127.293</td></tr><tr><td>6.009</td><td>37</td><td>15 Winter</td><td>30</td><td>+0%</td><td>100/15 Winter</td><td></td><td></td><td></td><td>126.069</td></tr><tr><td>7.000</td><td>49</td><td>15 Winter</td><td>30</td><td>+0%</td><td>30/15 Winter</td><td></td><td></td><td></td><td>126.155</td></tr><tr><td>7.001</td><td>48</td><td>15 Winter</td><td>30</td><td>+0%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>126.033</td></tr><tr><td>7.002</td><td>47</td><td>15 Winter</td><td>30</td><td>+0%</td><td>100/15 Winter</td><td></td><td></td><td></td><td>125.858</td></tr><tr><td>6.010</td><td>36</td><td>15 Winter</td><td>30</td><td>+0%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>125.329</td></tr><tr><td>1.021</td><td>4</td><td>240 Winter</td><td>30</td><td>+0%</td><td></td><td></td><td></td><td></td><td>124.593</td></tr><tr><td>1.022</td><td>3</td><td>240 Winter</td><td>30</td><td>+0%</td><td>100/120 Summer</td><td></td><td></td><td></td><td>124.578</td></tr><tr><td>1.023</td><td>2</td><td>180 Winter</td><td>30</td><td>+0%</td><td>30/30 Summer</td><td></td><td></td><td></td><td>124.560</td></tr></table>										US/MH		Return Climate		First (X)	First (Y)	First (Z)	Overflow	Water	PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level (m)	1.011	14	15 Winter	30	+0%					128.646	1.012	13	15 Winter	30	+0%					127.695	1.013	12	15 Winter	30	+0%	100/15 Summer				126.514	1.014	11	15 Winter	30	+0%	30/15 Summer				125.841	1.015	10	15 Winter	30	+0%	30/15 Summer				125.772	1.016	9	15 Winter	30	+0%	30/15 Summer				125.619	5.000	35	30 Winter	30	+0%	100/15 Summer				125.516	1.017	8	15 Winter	30	+0%	100/15 Summer				125.466	1.018	7	30 Winter	30	+0%	100/15 Winter				125.128	1.019	6	120 Winter	30	+0%					124.747	1.020	5	240 Winter	30	+0%					124.619	6.000	46	15 Winter	30	+0%	100/15 Summer				130.754	6.001	45	15 Winter	30	+0%	100/15 Summer				130.659	6.002	44	15 Winter	30	+0%	30/15 Summer				130.601	6.003	43	15 Winter	30	+0%	30/15 Summer				130.466	6.004	42	15 Winter	30	+0%	30/15 Summer				130.291	6.005	41	15 Winter	30	+0%					129.955	6.006	40	15 Winter	30	+0%					128.908	6.007	39	15 Winter	30	+0%					128.079	6.008	38	15 Winter	30	+0%					127.293	6.009	37	15 Winter	30	+0%	100/15 Winter				126.069	7.000	49	15 Winter	30	+0%	30/15 Winter				126.155	7.001	48	15 Winter	30	+0%	100/15 Summer				126.033	7.002	47	15 Winter	30	+0%	100/15 Winter				125.858	6.010	36	15 Winter	30	+0%	100/15 Summer				125.329	1.021	4	240 Winter	30	+0%					124.593	1.022	3	240 Winter	30	+0%	100/120 Summer				124.578	1.023	2	180 Winter	30	+0%	30/30 Summer				124.560
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<table><tr><th colspan="3">Surcharged Flooded</th><th colspan="2">Half Drain</th><th>Pipe</th><th colspan="2"></th><th>Level</th></tr><tr><th>PN</th><th>US/MH Name</th><th>Depth (m)</th><th>Volume (m³)</th><th>Flow / Cap.</th><th>Overflow (l/s)</th><th>Time (mins)</th><th>Flow (l/s)</th><th>Status</th><th>Exceeded</th></tr><tr><td>1.011</td><td>14</td><td>-0.207</td><td>0.000</td><td>0.57</td><td></td><td></td><td>311.7</td><td>OK</td><td></td></tr><tr><td>1.012</td><td>13</td><td>-0.224</td><td>0.000</td><td>0.50</td><td></td><td></td><td>310.3</td><td>OK</td><td></td></tr><tr><td>1.013</td><td>12</td><td>-0.202</td><td>0.000</td><td>0.58</td><td></td><td></td><td>321.8</td><td>OK</td><td></td></tr><tr><td>1.014</td><td>11</td><td>0.100</td><td>0.000</td><td>1.56</td><td></td><td></td><td>318.9</td><td>SURCHARGED</td><td></td></tr><tr><td>1.015</td><td>10</td><td>0.069</td><td>0.000</td><td>1.14</td><td></td><td></td><td>324.8</td><td>SURCHARGED</td><td></td></tr><tr><td>1.016</td><td>9</td><td>0.032</td><td>0.000</td><td>1.18</td><td></td><td></td><td>335.9</td><td>SURCHARGED</td><td></td></tr><tr><td>5.000</td><td>35</td><td>-0.037</td><td>0.000</td><td>0.16</td><td></td><td></td><td>31.1</td><td>OK</td><td></td></tr><tr><td>1.017</td><td>8</td><td>-0.004</td><td>0.000</td><td>1.10</td><td></td><td></td><td>332.1</td><td>OK</td><td></td></tr><tr><td>1.018</td><td>7</td><td>-0.311</td><td>0.000</td><td>0.64</td><td></td><td></td><td>328.8</td><td>OK</td><td></td></tr><tr><td>1.019</td><td>6</td><td>-0.503</td><td>0.000</td><td>0.22</td><td></td><td></td><td>113.1</td><td>OK</td><td></td></tr><tr><td>1.020</td><td>5</td><td>-0.428</td><td>0.000</td><td>0.20</td><td></td><td></td><td>94.8</td><td>OK</td><td></td></tr><tr><td>6.000</td><td>46</td><td>-0.146</td><td>0.000</td><td>0.51</td><td></td><td></td><td>39.8</td><td>OK</td><td></td></tr><tr><td>6.001</td><td>45</td><td>-0.036</td><td>0.000</td><td>0.47</td><td></td><td></td><td>37.3</td><td>OK</td><td></td></tr><tr><td>6.002</td><td>44</td><td>0.193</td><td>0.000</td><td>1.20</td><td></td><td></td><td>74.8</td><td>SURCHARGED</td><td></td></tr></table>										Surcharged Flooded			Half Drain		Pipe			Level	PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	Exceeded	1.011	14	-0.207	0.000	0.57			311.7	OK		1.012	13	-0.224	0.000	0.50			310.3	OK		1.013	12	-0.202	0.000	0.58			321.8	OK		1.014	11	0.100	0.000	1.56			318.9	SURCHARGED		1.015	10	0.069	0.000	1.14			324.8	SURCHARGED		1.016	9	0.032	0.000	1.18			335.9	SURCHARGED		5.000	35	-0.037	0.000	0.16			31.1	OK		1.017	8	-0.004	0.000	1.10			332.1	OK		1.018	7	-0.311	0.000	0.64			328.8	OK		1.019	6	-0.503	0.000	0.22			113.1	OK		1.020	5	-0.428	0.000	0.20			94.8	OK		6.000	46	-0.146	0.000	0.51			39.8	OK		6.001	45	-0.036	0.000	0.47			37.3	OK		6.002	44	0.193	0.000	1.20			74.8	SURCHARGED																																																																																																																																													
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6.000	46	-0.146	0.000	0.51			39.8	OK																																																																																																																																																																																																																																																																																																												
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1 Dale Street Liverpool L2 2ET	220-248 Higher Road, Longridge Proposed S.W Network	
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XP Solutions	Network 2020.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for 220-248 PROPOSED S.W NETWORK REV B.SWS

PN	US/MH Name	Surcharged Flooded		Flow / Overflow		Half Drain	Pipe	Status	Level Exceeded
		Depth (m)	Volume (m³)	Cap.	(l/s)	Time (mins)	Flow (l/s)		
6.003	43	0.149	0.000	1.15			74.2	SURCHARGED	
6.004	42	0.104	0.000	1.67			98.7	SURCHARGED	
6.005	41	-0.171	0.000	0.38			98.9	OK	
6.006	40	-0.163	0.000	0.43			98.8	OK	
6.007	39	-0.160	0.000	0.45			98.4	OK	
6.008	38	-0.175	0.000	0.36			97.8	OK	
6.009	37	-0.134	0.000	0.57			117.0	OK	
7.000	49	0.005	0.000	1.04			36.3	SURCHARGED	
7.001	48	-0.030	0.000	1.00			35.5	OK	
7.002	47	-0.104	0.000	0.56			35.5	OK	
6.010	36	-0.198	0.000	0.68			169.9	OK	
1.021	4	-0.376	0.000	0.31			132.5	OK	
1.022	3	-0.172	0.000	0.13			56.6	OK	
1.023	2	0.318	0.000	0.18			53.0	SURCHARGED	

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1 Dale Street Liverpool L2 2ET	220-248 Higher Road, Longridge Proposed S.W Network	
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100 year Return Period Summary of Critical Results by Maximum Level (Rank
1) for 220-248 PROPOSED S.W NETWORK REV B.SWS

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	10.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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 Storage Structures	2
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.275
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	18.900	Cv (Winter)	0.840

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Margin for Flood Risk Warning (mm) 300.0      DVD Status ON
      Analysis Timestep    Fine Inertia Status ON
      DTS Status          ON
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Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 40

US/MH				Return	Climate	First (X)		First (Y)		First (Z)	Overflow
PN	Name		Storm	Period	Change	Surcharge		Flood		Overflow	Act.
1.000	25	15	Winter	100	+40%	100/15	Summer				
1.001	24	15	Winter	100	+40%	30/15	Winter	100/15	Summer		
2.000	26	15	Winter	100	+40%						
1.002	23	15	Winter	100	+40%						
1.003	22	15	Winter	100	+40%						
3.000	29	15	Winter	100	+40%	30/15	Summer	100/15	Winter		
3.001	28	15	Winter	100	+40%	30/15	Summer				
3.002	27	15	Winter	100	+40%	30/15	Summer				
1.004	21	15	Winter	100	+40%	30/15	Summer				
1.005	20	15	Winter	100	+40%	30/15	Summer				
1.006	19	15	Winter	100	+40%	100/15	Summer				
1.007	18	15	Winter	100	+40%	100/15	Summer				
1.008	17	15	Winter	100	+40%	30/15	Winter				
1.009	16	15	Winter	100	+40%	30/15	Winter				
4.000	34	15	Winter	100	+40%						
4.001	33	15	Winter	100	+40%	30/15	Summer				
4.002	32	15	Winter	100	+40%						
4.003	31	15	Winter	100	+40%						
4.004	30	15	Winter	100	+40%						
1.010	15	15	Winter	100	+40%						

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XP Solutions	Network 2020.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank
1) for 220-248 PROPOSED S.W NETWORK REV B.SWS

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	25	143.190	1.165	0.000	0.97		96.9	FLOOD RISK
1.001	24	141.454	1.250	0.915	1.34		133.0	FLOOD
2.000	26	141.003	-0.122	0.000	0.43		59.7	OK
1.002	23	138.516	-0.122	0.000	0.65		190.2	OK
1.003	22	136.234	-0.095	0.000	0.79		221.4	OK
3.000	29	133.930	1.355	3.662	1.00		76.5	FLOOD
3.001	28	133.883	1.470	0.000	1.04		72.3	SURCHARGED
3.002	27	133.813	1.477	0.000	0.73		89.0	SURCHARGED
1.004	21	133.725	1.486	0.000	1.84		289.7	SURCHARGED
1.005	20	133.238	1.161	0.000	1.95		281.1	SURCHARGED
1.006	19	132.731	0.790	0.000	1.14		304.0	SURCHARGED
1.007	18	132.049	0.619	0.000	0.94		304.1	SURCHARGED
1.008	17	131.157	0.739	0.000	1.43		306.9	SURCHARGED
1.009	16	130.580	0.463	0.000	1.48		358.2	SURCHARGED
4.000	34	137.002	-0.148	0.000	0.25		32.1	OK
4.001	33	135.859	0.942	0.000	1.85		109.1	SURCHARGED
4.002	32	134.464	-0.076	0.000	0.77		109.1	OK
4.003	31	131.612	-0.049	0.000	0.98		108.8	OK
4.004	30	130.866	-0.171	0.000	0.38		108.1	OK
1.010	15	129.615	-0.122	0.000	0.88		465.8	OK

PN	US/MH Name	Level Exceeded
1.000	25	
1.001	24	2
2.000	26	
1.002	23	
1.003	22	
3.000	29	2
3.001	28	
3.002	27	
1.004	21	
1.005	20	
1.006	19	
1.007	18	
1.008	17	
1.009	16	
4.000	34	
4.001	33	
4.002	32	
4.003	31	
4.004	30	
1.010	15	

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<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 220-248 PROPOSED S.W NETWORK REV B.SWS</u>																																																																																																																																																																																																																																																																																																																														
<table><tr><th colspan="8"></th><th>Water</th></tr><tr><th>US/MH</th><th>Return Climate</th><th>First (X)</th><th>First (Y)</th><th>First (Z)</th><th>Overflow</th><th>Level</th><th colspan="3"></th></tr><tr><th>PN</th><th>Name</th><th>Storm</th><th>Period</th><th>Change</th><th>Surcharge</th><th>Flood</th><th>Overflow</th><th>Act.</th><th>(m)</th></tr><tr><td>1.011</td><td>14</td><td>15 Winter</td><td>100</td><td>+40%</td><td></td><td></td><td></td><td></td><td>128.723</td></tr><tr><td>1.012</td><td>13</td><td>15 Winter</td><td>100</td><td>+40%</td><td></td><td></td><td></td><td></td><td>127.828</td></tr><tr><td>1.013</td><td>12</td><td>15 Winter</td><td>100</td><td>+40%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>127.183</td></tr><tr><td>1.014</td><td>11</td><td>15 Winter</td><td>100</td><td>+40%</td><td>30/15 Summer</td><td></td><td></td><td></td><td>126.481</td></tr><tr><td>1.015</td><td>10</td><td>30 Winter</td><td>100</td><td>+40%</td><td>30/15 Summer</td><td></td><td></td><td></td><td>126.263</td></tr><tr><td>1.016</td><td>9</td><td>30 Winter</td><td>100</td><td>+40%</td><td>30/15 Summer</td><td></td><td></td><td></td><td>125.928</td></tr><tr><td>5.000</td><td>35</td><td>15 Summer</td><td>100</td><td>+40%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>125.564</td></tr><tr><td>1.017</td><td>8</td><td>30 Winter</td><td>100</td><td>+40%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>125.534</td></tr><tr><td>1.018</td><td>7</td><td>30 Winter</td><td>100</td><td>+40%</td><td>100/15 Winter</td><td></td><td></td><td></td><td>125.454</td></tr><tr><td>1.019</td><td>6</td><td>240 Winter</td><td>100</td><td>+40%</td><td></td><td></td><td></td><td></td><td>125.008</td></tr><tr><td>1.020</td><td>5</td><td>360 Winter</td><td>100</td><td>+40%</td><td></td><td></td><td></td><td></td><td>124.963</td></tr><tr><td>6.000</td><td>46</td><td>15 Winter</td><td>100</td><td>+40%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>131.809</td></tr><tr><td>6.001</td><td>45</td><td>15 Winter</td><td>100</td><td>+40%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>131.689</td></tr><tr><td>6.002</td><td>44</td><td>15 Winter</td><td>100</td><td>+40%</td><td>30/15 Summer</td><td></td><td></td><td></td><td>131.556</td></tr><tr><td>6.003</td><td>43</td><td>15 Winter</td><td>100</td><td>+40%</td><td>30/15 Summer</td><td></td><td></td><td></td><td>131.144</td></tr><tr><td>6.004</td><td>42</td><td>15 Winter</td><td>100</td><td>+40%</td><td>30/15 Summer</td><td></td><td></td><td></td><td>130.644</td></tr><tr><td>6.005</td><td>41</td><td>15 Winter</td><td>100</td><td>+40%</td><td></td><td></td><td></td><td></td><td>130.006</td></tr><tr><td>6.006</td><td>40</td><td>15 Winter</td><td>100</td><td>+40%</td><td></td><td></td><td></td><td></td><td>128.964</td></tr><tr><td>6.007</td><td>39</td><td>15 Winter</td><td>100</td><td>+40%</td><td></td><td></td><td></td><td></td><td>128.136</td></tr><tr><td>6.008</td><td>38</td><td>15 Winter</td><td>100</td><td>+40%</td><td></td><td></td><td></td><td></td><td>127.341</td></tr><tr><td>6.009</td><td>37</td><td>15 Winter</td><td>100</td><td>+40%</td><td>100/15 Winter</td><td></td><td></td><td></td><td>126.240</td></tr><tr><td>7.000</td><td>49</td><td>15 Winter</td><td>100</td><td>+40%</td><td>30/15 Winter</td><td></td><td></td><td></td><td>126.586</td></tr><tr><td>7.001</td><td>48</td><td>15 Winter</td><td>100</td><td>+40%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>126.300</td></tr><tr><td>7.002</td><td>47</td><td>15 Winter</td><td>100</td><td>+40%</td><td>100/15 Winter</td><td></td><td></td><td></td><td>125.978</td></tr><tr><td>6.010</td><td>36</td><td>15 Winter</td><td>100</td><td>+40%</td><td>100/15 Summer</td><td></td><td></td><td></td><td>125.564</td></tr><tr><td>1.021</td><td>4</td><td>240 Winter</td><td>100</td><td>+40%</td><td></td><td></td><td></td><td></td><td>124.889</td></tr><tr><td>1.022</td><td>3</td><td>360 Winter</td><td>100</td><td>+40%</td><td>100/120 Summer</td><td></td><td></td><td></td><td>124.842</td></tr><tr><td>1.023</td><td>2</td><td>180 Summer</td><td>100</td><td>+40%</td><td>30/30 Summer</td><td></td><td></td><td></td><td>125.171</td></tr></table>																		Water	US/MH	Return Climate	First (X)	First (Y)	First (Z)	Overflow	Level				PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	(m)	1.011	14	15 Winter	100	+40%					128.723	1.012	13	15 Winter	100	+40%					127.828	1.013	12	15 Winter	100	+40%	100/15 Summer				127.183	1.014	11	15 Winter	100	+40%	30/15 Summer				126.481	1.015	10	30 Winter	100	+40%	30/15 Summer				126.263	1.016	9	30 Winter	100	+40%	30/15 Summer				125.928	5.000	35	15 Summer	100	+40%	100/15 Summer				125.564	1.017	8	30 Winter	100	+40%	100/15 Summer				125.534	1.018	7	30 Winter	100	+40%	100/15 Winter				125.454	1.019	6	240 Winter	100	+40%					125.008	1.020	5	360 Winter	100	+40%					124.963	6.000	46	15 Winter	100	+40%	100/15 Summer				131.809	6.001	45	15 Winter	100	+40%	100/15 Summer				131.689	6.002	44	15 Winter	100	+40%	30/15 Summer				131.556	6.003	43	15 Winter	100	+40%	30/15 Summer				131.144	6.004	42	15 Winter	100	+40%	30/15 Summer				130.644	6.005	41	15 Winter	100	+40%					130.006	6.006	40	15 Winter	100	+40%					128.964	6.007	39	15 Winter	100	+40%					128.136	6.008	38	15 Winter	100	+40%					127.341	6.009	37	15 Winter	100	+40%	100/15 Winter				126.240	7.000	49	15 Winter	100	+40%	30/15 Winter				126.586	7.001	48	15 Winter	100	+40%	100/15 Summer				126.300	7.002	47	15 Winter	100	+40%	100/15 Winter				125.978	6.010	36	15 Winter	100	+40%	100/15 Summer				125.564	1.021	4	240 Winter	100	+40%					124.889	1.022	3	360 Winter	100	+40%	100/120 Summer				124.842	1.023	2	180 Summer	100	+40%	30/30 Summer				125.171
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1.012	13	15 Winter	100	+40%					127.828																																																																																																																																																																																																																																																																																																																					
1.013	12	15 Winter	100	+40%	100/15 Summer				127.183																																																																																																																																																																																																																																																																																																																					
1.014	11	15 Winter	100	+40%	30/15 Summer				126.481																																																																																																																																																																																																																																																																																																																					
1.015	10	30 Winter	100	+40%	30/15 Summer				126.263																																																																																																																																																																																																																																																																																																																					
1.016	9	30 Winter	100	+40%	30/15 Summer				125.928																																																																																																																																																																																																																																																																																																																					
5.000	35	15 Summer	100	+40%	100/15 Summer				125.564																																																																																																																																																																																																																																																																																																																					
1.017	8	30 Winter	100	+40%	100/15 Summer				125.534																																																																																																																																																																																																																																																																																																																					
1.018	7	30 Winter	100	+40%	100/15 Winter				125.454																																																																																																																																																																																																																																																																																																																					
1.019	6	240 Winter	100	+40%					125.008																																																																																																																																																																																																																																																																																																																					
1.020	5	360 Winter	100	+40%					124.963																																																																																																																																																																																																																																																																																																																					
6.000	46	15 Winter	100	+40%	100/15 Summer				131.809																																																																																																																																																																																																																																																																																																																					
6.001	45	15 Winter	100	+40%	100/15 Summer				131.689																																																																																																																																																																																																																																																																																																																					
6.002	44	15 Winter	100	+40%	30/15 Summer				131.556																																																																																																																																																																																																																																																																																																																					
6.003	43	15 Winter	100	+40%	30/15 Summer				131.144																																																																																																																																																																																																																																																																																																																					
6.004	42	15 Winter	100	+40%	30/15 Summer				130.644																																																																																																																																																																																																																																																																																																																					
6.005	41	15 Winter	100	+40%					130.006																																																																																																																																																																																																																																																																																																																					
6.006	40	15 Winter	100	+40%					128.964																																																																																																																																																																																																																																																																																																																					
6.007	39	15 Winter	100	+40%					128.136																																																																																																																																																																																																																																																																																																																					
6.008	38	15 Winter	100	+40%					127.341																																																																																																																																																																																																																																																																																																																					
6.009	37	15 Winter	100	+40%	100/15 Winter				126.240																																																																																																																																																																																																																																																																																																																					
7.000	49	15 Winter	100	+40%	30/15 Winter				126.586																																																																																																																																																																																																																																																																																																																					
7.001	48	15 Winter	100	+40%	100/15 Summer				126.300																																																																																																																																																																																																																																																																																																																					
7.002	47	15 Winter	100	+40%	100/15 Winter				125.978																																																																																																																																																																																																																																																																																																																					
6.010	36	15 Winter	100	+40%	100/15 Summer				125.564																																																																																																																																																																																																																																																																																																																					
1.021	4	240 Winter	100	+40%					124.889																																																																																																																																																																																																																																																																																																																					
1.022	3	360 Winter	100	+40%	100/120 Summer				124.842																																																																																																																																																																																																																																																																																																																					
1.023	2	180 Summer	100	+40%	30/30 Summer				125.171																																																																																																																																																																																																																																																																																																																					
<table><tr><th colspan="5">Surcharged Flooded</th><th>Half Drain</th><th>Pipe</th><th colspan="2"></th></tr><tr><th>US/MH</th><th>Depth</th><th>Volume</th><th>Flow /</th><th>Overflow</th><th>Time</th><th>Flow</th><th>Status</th><th>Level</th><th></th></tr><tr><th>PN</th><th>Name</th><th>(m)</th><th>(m³)</th><th>Cap.</th><th>(l/s)</th><th>(mins)</th><th>(l/s)</th><th>Exceeded</th><th></th></tr><tr><td>1.011</td><td>14</td><td>-0.130</td><td>0.000</td><td>0.85</td><td></td><td></td><td>465.5</td><td>OK</td><td></td></tr><tr><td>1.012</td><td>13</td><td>-0.091</td><td>0.000</td><td>0.75</td><td></td><td></td><td>460.9</td><td>OK</td><td></td></tr><tr><td>1.013</td><td>12</td><td>0.467</td><td>0.000</td><td>0.85</td><td></td><td></td><td>474.2</td><td>SURCHARGED</td><td></td></tr><tr><td>1.014</td><td>11</td><td>0.740</td><td>0.000</td><td>2.32</td><td></td><td></td><td>472.7</td><td>SURCHARGED</td><td></td></tr><tr><td>1.015</td><td>10</td><td>0.560</td><td>0.000</td><td>1.68</td><td></td><td></td><td>478.8</td><td>SURCHARGED</td><td></td></tr><tr><td>1.016</td><td>9</td><td>0.341</td><td>0.000</td><td>1.82</td><td></td><td></td><td>516.7</td><td>SURCHARGED</td><td></td></tr><tr><td>5.000</td><td>35</td><td>0.011</td><td>0.000</td><td>0.33</td><td></td><td></td><td>63.7</td><td>SURCHARGED</td><td></td></tr><tr><td>1.017</td><td>8</td><td>0.064</td><td>0.000</td><td>1.95</td><td></td><td></td><td>590.6</td><td>SURCHARGED</td><td></td></tr><tr><td>1.018</td><td>7</td><td>0.015</td><td>0.000</td><td>1.14</td><td></td><td></td><td>584.8</td><td>FLOOD RISK</td><td></td></tr><tr><td>1.019</td><td>6</td><td>-0.242</td><td>0.000</td><td>0.29</td><td></td><td></td><td>152.3</td><td>OK</td><td></td></tr><tr><td>1.020</td><td>5</td><td>-0.083</td><td>0.000</td><td>0.25</td><td></td><td></td><td>113.6</td><td>OK</td><td></td></tr><tr><td>6.000</td><td>46</td><td>0.909</td><td>0.000</td><td>0.77</td><td></td><td></td><td>60.1</td><td>SURCHARGED</td><td></td></tr><tr><td>6.001</td><td>45</td><td>0.994</td><td>0.000</td><td>0.77</td><td></td><td></td><td>61.6</td><td>SURCHARGED</td><td></td></tr><tr><td>6.002</td><td>44</td><td>1.148</td><td>0.000</td><td>2.04</td><td></td><td></td><td>127.5</td><td>SURCHARGED</td><td></td></tr></table>										Surcharged Flooded					Half Drain	Pipe			US/MH	Depth	Volume	Flow /	Overflow	Time	Flow	Status	Level		PN	Name	(m)	(m³)	Cap.	(l/s)	(mins)	(l/s)	Exceeded		1.011	14	-0.130	0.000	0.85			465.5	OK		1.012	13	-0.091	0.000	0.75			460.9	OK		1.013	12	0.467	0.000	0.85			474.2	SURCHARGED		1.014	11	0.740	0.000	2.32			472.7	SURCHARGED		1.015	10	0.560	0.000	1.68			478.8	SURCHARGED		1.016	9	0.341	0.000	1.82			516.7	SURCHARGED		5.000	35	0.011	0.000	0.33			63.7	SURCHARGED		1.017	8	0.064	0.000	1.95			590.6	SURCHARGED		1.018	7	0.015	0.000	1.14			584.8	FLOOD RISK		1.019	6	-0.242	0.000	0.29			152.3	OK		1.020	5	-0.083	0.000	0.25			113.6	OK		6.000	46	0.909	0.000	0.77			60.1	SURCHARGED		6.001	45	0.994	0.000	0.77			61.6	SURCHARGED		6.002	44	1.148	0.000	2.04			127.5	SURCHARGED																																																																																																																																													
Surcharged Flooded					Half Drain	Pipe																																																																																																																																																																																																																																																																																																																								
US/MH	Depth	Volume	Flow /	Overflow	Time	Flow	Status	Level																																																																																																																																																																																																																																																																																																																						
PN	Name	(m)	(m³)	Cap.	(l/s)	(mins)	(l/s)	Exceeded																																																																																																																																																																																																																																																																																																																						
1.011	14	-0.130	0.000	0.85			465.5	OK																																																																																																																																																																																																																																																																																																																						
1.012	13	-0.091	0.000	0.75			460.9	OK																																																																																																																																																																																																																																																																																																																						
1.013	12	0.467	0.000	0.85			474.2	SURCHARGED																																																																																																																																																																																																																																																																																																																						
1.014	11	0.740	0.000	2.32			472.7	SURCHARGED																																																																																																																																																																																																																																																																																																																						
1.015	10	0.560	0.000	1.68			478.8	SURCHARGED																																																																																																																																																																																																																																																																																																																						
1.016	9	0.341	0.000	1.82			516.7	SURCHARGED																																																																																																																																																																																																																																																																																																																						
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1.017	8	0.064	0.000	1.95			590.6	SURCHARGED																																																																																																																																																																																																																																																																																																																						
1.018	7	0.015	0.000	1.14			584.8	FLOOD RISK																																																																																																																																																																																																																																																																																																																						
1.019	6	-0.242	0.000	0.29			152.3	OK																																																																																																																																																																																																																																																																																																																						
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©1982-2020 Innovyze																																																																																																																																																																																																																																																																																																																														

The Alan Johnston Partnership		Page 26
1 Dale Street Liverpool L2 2ET	220-248 Higher Road, Longridge Proposed S.W Network	
Date 01/01/0001 File 220-248 Proposed S.W Ne...	Designed by JCM Checked by JLS	
XP Solutions	Network 2020.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 220-248 PROPOSED S.W NETWORK REV B.SWS

PN	US/MH Name	Surcharged		Flooded		Half Drain		Pipe	Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Flow		
6.003	43	0.827	0.000	1.96			126.9		SURCHARGED	
6.004	42	0.457	0.000	2.87			169.8		SURCHARGED	
6.005	41	-0.120	0.000	0.66			170.4		OK	
6.006	40	-0.107	0.000	0.75			170.4		OK	
6.007	39	-0.103	0.000	0.77			170.0		OK	
6.008	38	-0.127	0.000	0.63			169.2		OK	
6.009	37	0.037	0.000	1.00			205.0		SURCHARGED	
7.000	49	0.436	0.000	1.84			64.2		SURCHARGED	
7.001	48	0.237	0.000	1.79			63.4		SURCHARGED	
7.002	47	0.016	0.000	0.99			62.5		SURCHARGED	
6.010	36	0.037	0.000	1.20			297.8		SURCHARGED	
1.021	4	-0.080	0.000	0.54			230.9		OK	
1.022	3	0.092	0.000	0.15			67.7		SURCHARGED	
1.023	2	0.929	0.000	0.18			52.9		SURCHARGED	