


Atkins Global		Page 1
18th Fl, Tower C, Cyber Green Building DLF Cyber City, DLF Phase - III Gurgaon, Haryana - 122 002, India / Tel. +911...	East West Rail Phase 2 Section 2A2-14	
Date 23/01/2020 File 133735_2A-EWR-OXD-XX-M3-DR-000042.MDX	Designed by Steven Genever Checked by Ben Wilding	
XP Solutions	Network 2018.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 2A2-14


Pipe Sizes EWRP2 Manhole Sizes EWRP2 Ld

FSR Rainfall Model - England and Wales

Return Period (years)	5	Foul Sewage (l/s/ha)	0.000	Maximum Backdrop Height (m)	1.500
M5-60 (mm)	20.000	Volumetric Runoff Coeff.	0.750	Min Design Depth for Optimisation (m)	0.800
Ratio R	0.413	PIMP (%)	100	Min Vel for Auto Design only (m/s)	0.76
Maximum Rainfall (mm/hr)	100	Add Flow / Climate Change (%)	0	Min Slope for Optimisation (1:X)	500
Maximum Time of Concentration (mins)	30	Minimum Backdrop Height (m)	0.200		

Designed with Level Soffits











Network Design Table for 2A2-14

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
2A2_14-1.000	30.001	0.157	191.1	0.037	5.00	0.0	0.035	1 _ /	500	1:1 Ditch	

Network Results Table


PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
2A2_14-1.000	86.80	5.76	88.042	0.037	0.0	0.0	0.0	0.65	156.9	8.6

Network Design Table for 2A2-14








PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
2A2_14-1.001	50.041	1.133	44.2	0.064	0.00	0.0	0.035	1 _/\	500	1:1 Ditch	
2A2_14-1.002	19.259	0.626	30.8	0.035	0.00	0.0	0.035	1 _/\	500	1:1 Ditch	
2A2_14-1.003	40.989	1.226	33.4	0.039	0.00	0.0	0.035	1 _/\	500	1:1 Ditch	
2A2_14-1.004	10.008	0.299	33.5	0.014	0.00	0.0	0.035	1 _/\	500	1:1 Ditch	
2A2_14-1.005	29.979	0.795	37.7	0.040	0.00	0.0	0.035	1 _/\	500	1:1 Ditch	
2A2_14-1.006	50.211	1.859	27.0	0.097	0.00	0.0	0.035	1 _/\	500	1:1 Ditch	
2A2_14-1.007	50.088	1.305	38.4	0.122	0.00	0.0	0.035	1 _/\	500	1:1 Ditch	
2A2_14-1.008	50.223	1.395	36.0	0.116	0.00	0.0	0.035	1 _/\	500	1:1 Ditch	
2A2_14-1.009	50.059	0.636	78.7	0.022	0.00	0.0	0.035	1 _/\	500	1:1 Ditch	
2A2_14-1.010	50.012	0.562	89.0	0.025	0.00	0.0	0.035	1 _/\	500	1:1 Ditch	

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)
2A2_14-1.001	82.85	6.38	87.885	0.101	0.0	0.0	0.0	1.36	326.5	22.7
2A2_14-1.002	81.66	6.57	86.752	0.136	0.0	0.0	0.0	1.63	391.2	30.0
2A2_14-1.003	79.17	7.01	86.126	0.175	0.0	0.0	0.0	1.56	375.2	37.5
2A2_14-1.004	78.59	7.12	84.900	0.189	0.0	0.0	0.0	1.56	375.0	40.3
2A2_14-1.005	76.80	7.46	84.601	0.230	0.0	0.0	0.0	1.47	353.3	47.7
2A2_14-1.006	74.42	7.94	83.806	0.327	0.0	0.0	0.0	1.74	417.5	65.8
2A2_14-1.007	71.80	8.51	81.947	0.449	0.0	0.0	0.0	1.46	350.2	87.3
2A2_14-1.008	69.45	9.07	80.642	0.565	0.0	0.0	0.0	1.51	361.6	106.2
2A2_14-1.009	66.29	9.89	79.247	0.587	0.0	0.0	0.0	1.02	244.5	106.2
2A2_14-1.010	63.27	10.76	78.611	0.611	0.0	0.0	0.0	0.96	230.0	106.2


Atkins Global		Page 3
18th Fl, Tower C, Cyber Green Building DLF Cyber City, DLF Phase - III Gurgaon, Haryana - 122 002, India / Tel. +911...	East West Rail Phase 2 Section 2A2-14	
Date 23/01/2020 File 133735_2A-EWR-OXD-XX-M3-DR-000042.MDX	Designed by Steven Genever Checked by Ben Wilding	
XP Solutions	Network 2018.1	

Network Design Table for 2A2-14

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
2A2_14-1.011	50.084	0.631	79.4	0.032	0.00	0.0	0.035	1 \ \ /	500	1:1 Ditch	
2A2_14-1.012	30.241	0.050	604.8	0.027	0.00	0.0	0.035	1 \ \ /	1000	1:1 Ditch	
2A2_14-1.013	20.081	0.050	401.6	0.000	0.00	0.0	0.035	1 \ \ /	1000	1:1 Ditch	
2A2_14-1.014	49.983	0.100	499.8	0.028	0.00	0.0	0.035	1 \ \ /	1000	1:1 Ditch	
2A2_14-1.015	36.488	0.080	456.1	0.026	0.00	0.0	0.035	1 \ \ /	1000	1:1 Ditch	
2A2_14-1.016	3.649	0.955	3.8	0.000	0.00	0.0	0.035	1 \ \ /	1000	1:1 Ditch	
2A2_14-1.017	5.228	1.300	4.0	0.007	0.00	0.0	0.035	1 \ \ /	1000	1:1 Ditch	

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)
2A2_14-1.011	60.69	11.58	78.049	0.643	0.0	0.0	0.0	1.01	243.5	106.2
2A2_14-1.012	57.27	12.80	77.418	0.670	0.0	0.0	0.0	0.41	160.6	106.2
2A2_14-1.013	55.60	13.46	77.368	0.670	0.0	0.0	0.0	0.51	197.1	106.2
2A2_14-1.014	51.48	15.30	77.318	0.698	0.0	0.0	0.0	0.45	176.6	106.2
2A2_14-1.015	49.00	16.59	77.218	0.724	0.0	0.0	0.0	0.47	184.9	106.2
2A2_14-1.016	48.98	16.60	77.138	0.724	0.0	0.0	0.0	5.18	2020.2	106.2
2A2_14-1.017	48.95	16.62	76.183	0.731	0.0	0.0	0.0	5.05	1969.2	106.2

Atkins Global		Page 4
18th Fl, Tower C, Cyber Green Building DLF Cyber City, DLF Phase - III Gurgaon, Haryanan - 122 002, India / Tel. +911...	East West Rail Phase 2 Section 2A2-14	
Date 23/01/2020 File 133735_2A-EWR-OXD-XX-M3-DR-000042.MDX	Designed by Steven Genever Checked by Ben Wilding	
XP Solutions	Network 2018.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 2A2-14

Simulation Criteria

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

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


Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.413 Cv (Winter) 0.840

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


Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 100
Climate Change (%) 40

PN	US/MH Name	Event	US/CL (m)	Water Surcharged			Flooded		Pipe Flow (l/s)	Status
				Level (m)	Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)		
2A2_14-1.000	2A2_14-1	15 minute 100 year Winter I+40%	88.542	88.144	-0.398	0.000	0.05	22.6	OK	
2A2_14-1.001	2A2_14-2	15 minute 100 year Winter I+40%	88.385	88.006	-0.379	0.000	0.07	63.3	OK	
2A2_14-1.002	2A2_14-3	15 minute 100 year Winter I+40%	87.252	86.881	-0.371	0.000	0.08	84.5	OK	

Atkins Global		Page 5
18th Fl, Tower C, Cyber Green Building DLF Cyber City, DLF Phase - III Gurgaon, Haryana - 122 002, India / Tel. +911...	East West Rail Phase 2 Section 2A2-14	
Date 23/01/2020 File 133735_2A-EWR-OXD-XX-M3-DR-000042.MDX	Designed by Steven Genever Checked by Ben Wilding	
XP Solutions	Network 2018.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 2A2-14

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap. (l/s)	Overflow (l/s)	Pipe Flow (l/s)	Status
2A2_14-1.003	2A2_14-4	15 minute 100 year Winter I+40%	86.626	86.280	-0.346	0.000	0.11		109.3	OK
2A2_14-1.004	2A2_14-5	15 minute 100 year Winter I+40%	85.400	85.060	-0.340	0.000	0.12		118.5	OK
2A2_14-1.005	2A2_14-6	15 minute 100 year Winter I+40%	85.101	84.786	-0.315	0.000	0.15		143.1	OK
2A2_14-1.006	2A2_14-7	15 minute 100 year Winter I+40%	84.306	84.012	-0.294	0.000	0.18		202.6	FLOOD RISK*
2A2_14-1.007	2A2_14-8	15 minute 100 year Winter I+40%	82.500	82.216	-0.284	0.000	0.24		277.3	FLOOD RISK*
2A2_14-1.008	2A2_14-9	15 minute 100 year Winter I+40%	81.142	80.940	-0.202	0.000	0.36		346.7	FLOOD RISK*
2A2_14-1.009	2A2_14-10	15 minute 100 year Winter I+40%	79.747	79.613	-0.134	0.000	0.53		349.0	FLOOD RISK*
2A2_14-1.010	2A2_14-11	15 minute 100 year Winter I+40%	79.111	78.993	-0.118	0.000	0.57		352.9	FLOOD RISK*
2A2_14-1.011	2A2_14-12	15 minute 100 year Winter I+40%	78.549	78.422	-0.127	0.000	0.55		360.6	FLOOD RISK*
2A2_14-1.012	2A2_14-13	15 minute 100 year Winter I+40%	77.918	77.895	-0.023	0.000	0.89		357.5	FLOOD RISK*
2A2_14-1.013	2A2_14-14	15 minute 100 year Winter I+40%	78.430	77.808	-0.622	0.000	0.16		340.8	OK
2A2_14-1.014	2A2_14-15	15 minute 100 year Winter I+40%	78.350	77.761	-0.589	0.000	0.19		327.6	OK
2A2_14-1.015	2A2_14-16	15 minute 100 year Winter I+40%	78.060	77.626	-0.434	0.000	0.25		313.5	OK
2A2_14-1.016	2A2_14-17	15 minute 100 year Winter I+40%	77.550	77.238	-0.312	0.000	0.16		314.9	OK
2A2_14-1.017	2A2_14-18	15 minute 100 year Winter I+40%	76.690	76.285	-0.405	0.000	0.10		315.5	OK

Atkins Global		Page 1
18th Fl, Tower C, Cyber Green Building DLF Cyber City, DLF Phase - III Gurgaon, Haryana - 122 002, India / Tel. +911...	East West Rail Phase 2 Section 2A2-15	
Date 23/01/2020 File 133735_2A-EWR-OXD-XX-M3-DR-000021.MDX	Designed by Steven Genever Checked by Ben Wilding	
XP Solutions	Network 2018.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 2A2-15


Pipe Sizes EWRP2 Manhole Sizes EWRP2 Tr

FSR Rainfall Model - England and Wales

Return Period (years)	5	Foul Sewage (l/s/ha)	0.000	Maximum Backdrop Height (m)	1.500
M5-60 (mm)	20.000	Volumetric Runoff Coeff.	0.750	Min Design Depth for Optimisation (m)	0.800
Ratio R	0.412	PIMP (%)	100	Min Vel for Auto Design only (m/s)	0.76
Maximum Rainfall (mm/hr)	100	Add Flow / Climate Change (%)	0	Min Slope for Optimisation (1:X)	500
Maximum Time of Concentration (mins)	30	Minimum Backdrop Height (m)	0.200		


Designed with Level Soffits

Network Design Table for 2A2-15











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
2A2_15-1.000	50.000	0.260	192.3	0.035	5.00	0.0	0.600		o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
2A2_15-1.000	86.88	5.74	82.883	0.035	0.0	0.0	0.0	1.13	79.9	8.3


Atkins Global		Page 2
18th Fl, Tower C, Cyber Green Building DLF Cyber City, DLF Phase - III Gurgaon, Haryana - 122 002, India / Tel. +911...		
Date 23/01/2020 File 133735_2A-EWR-OXD-XX-M3-DR-000021.MDX		
XP Solutions		Network 2018.1

Network Design Table for 2A2-15











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
2A2_15-1.001	50.000	0.259	193.1	0.053	0.00	0.0	0.600		o	300	Pipe/Conduit	
2A2_15-1.002	50.000	0.260	192.3	0.062	0.00	0.0	0.600		o	300	Pipe/Conduit	
2A2_15-1.003	50.000	0.260	192.3	0.071	0.00	0.0	0.600		o	300	Pipe/Conduit	
2A2_15-1.004	50.000	0.454	110.1	0.081	0.00	0.0	0.600		o	300	Pipe/Conduit	
2A2_15-1.005	50.000	0.335	149.3	0.088	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.006	50.000	0.335	149.3	0.092	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.007	50.000	0.335	149.3	0.093	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.008	50.000	0.335	149.3	0.086	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.009	50.000	0.335	149.3	0.077	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.010	50.000	0.334	149.7	0.068	0.00	0.0	0.600		o	450	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)
2A2_15-1.001	82.16	6.48	82.623	0.089	0.0	0.0	0.0	1.13	79.7	19.8
2A2_15-1.002	77.99	7.21	82.364	0.151	0.0	0.0	0.0	1.13	79.9	32.0
2A2_15-1.003	74.29	7.95	82.104	0.222	0.0	0.0	0.0	1.13	79.9	44.7
2A2_15-1.004	71.75	8.51	81.844	0.304	0.0	0.0	0.0	1.50	105.9	59.0
2A2_15-1.005	69.62	9.01	81.390	0.392	0.0	0.0	0.0	1.66	264.3	73.9
2A2_15-1.006	67.63	9.51	81.055	0.484	0.0	0.0	0.0	1.66	264.3	88.7
2A2_15-1.007	65.77	10.01	80.720	0.578	0.0	0.0	0.0	1.66	264.3	102.9
2A2_15-1.008	64.02	10.51	80.385	0.663	0.0	0.0	0.0	1.66	264.3	115.0
2A2_15-1.009	62.37	11.01	80.050	0.740	0.0	0.0	0.0	1.66	264.3	125.1
2A2_15-1.010	60.82	11.52	79.715	0.808	0.0	0.0	0.0	1.66	263.9	133.1


Atkins Global		Page 3
18th Fl, Tower C, Cyber Green Building DLF Cyber City, DLF Phase - III Gurgaon, Haryana - 122 002, India / Tel. +911...		
Date 23/01/2020 File 133735_2A-EWR-OXD-XX-M3-DR-000021.MDX		
XP Solutions		Network 2018.1

Network Design Table for 2A2-15


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
2A2_15-1.011	50.000	0.336	148.8	0.055	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.012	50.000	0.335	149.3	0.044	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.013	49.984	0.535	93.4	0.028	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.014	50.000	0.367	136.2	0.027	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.015	50.000	0.391	127.9	0.027	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.016	50.000	0.384	130.2	0.027	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.017	50.000	0.388	128.9	0.027	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.018	50.000	0.344	145.3	0.027	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.019	19.993	0.128	156.2	0.011	0.00	0.0	0.600		o	450	Pipe/Conduit	
2A2_15-1.020	12.961	0.178	72.8	0.003	0.00	0.0	0.600		o	450	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)
2A2_15-1.011	59.36	12.02	79.381	0.863	0.0	0.0	0.0	1.66	264.7	138.8
2A2_15-1.012	57.97	12.52	79.045	0.908	0.0	0.0	0.0	1.66	264.3	142.5
2A2_15-1.013	56.93	12.91	78.710	0.936	0.0	0.0	0.0	2.10	334.6	144.3
2A2_15-1.014	55.72	13.39	78.175	0.963	0.0	0.0	0.0	1.74	276.7	145.3
2A2_15-1.015	54.61	13.86	77.808	0.990	0.0	0.0	0.0	1.80	285.7	146.4
2A2_15-1.016	53.54	14.33	77.417	1.017	0.0	0.0	0.0	1.78	283.1	147.5
2A2_15-1.017	52.52	14.79	77.033	1.044	0.0	0.0	0.0	1.79	284.6	148.5
2A2_15-1.018	51.48	15.29	76.645	1.071	0.0	0.0	0.0	1.68	267.9	149.3
2A2_15-1.019	51.07	15.49	76.301	1.082	0.0	0.0	0.0	1.62	258.3	149.6
2A2_15-1.020	50.88	15.58	75.152	1.085	0.0	0.0	0.0	2.38	379.3	149.6


Atkins Global		Page 4
18th Fl, Tower C, Cyber Green Building DLF Cyber City, DLF Phase - III Gurgaon, Haryana - 122 002, India / Tel. +911...	East West Rail Phase 2 Section 2A2-15	
Date 23/01/2020 File 133735_2A-EWR-OXD-XX-M3-DR-000021.MDX	Designed by Steven Genever Checked by Ben Wilding	
XP Solutions	Network 2018.1	

Network Design Table for 2A2-15

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
2A2_15-1.021	15.428	0.031	500.0	0.005	0.00	0.0	0.035	1	_/	500	1:1 Ditch	

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)
2A2_15-1.021	49.92	16.07	74.974	1.089	0.0	0.0	0.0	0.52	261.1	149.6

Atkins Global		Page 5
18th Fl, Tower C, Cyber Green Building DLF Cyber City, DLF Phase - III Gurgaon, Haryana - 122 002, India / Tel. +911...	East West Rail Phase 2 Section 2A2-15	
Date 23/01/2020 File 133735_2A-EWR-OXD-XX-M3-DR-000021.MDX	Designed by Steven Genever Checked by Ben Wilding	
XP Solutions	Network 2018.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 2A2-15

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.412 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 100
Climate Change (%) 40

PN	US/MH Name	Event	US/CL (m)	Water Surcharged Flooded			Flow / Overflow		Pipe	Status
				Level (m)	Depth (m)	Volume (m ³)	Cap.	(l/s)	(l/s)	
2A2_15-1.000	2A2_15-1	15 minute 100 year Winter I+40%	84.333	83.653	0.470	0.000	0.28	20.7	SURCHARGED	
2A2_15-1.001	2A2_15-2	15 minute 100 year Winter I+40%	84.078	83.646	0.723	0.000	0.60	45.1	SURCHARGED	
2A2_15-1.002	2A2_15-3	15 minute 100 year Winter I+40%	83.814	83.590	0.926	0.000	0.82	62.0	FLOOD RISK	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 2A2-15

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap. (l/s)	Overflow (l/s)	Pipe Flow (l/s)	Status
2A2_15-1.003	2A2_15-4	15 minute 100 year Winter I+40%	83.554	83.441	1.037	0.000	1.18		88.5	FLOOD RISK
2A2_15-1.004	2A2_15-5	15 minute 100 year Winter I+40%	83.294	83.146	1.002	0.000	1.24		123.4	FLOOD RISK
2A2_15-1.005	2A2_15-6	15 minute 100 year Winter I+40%	82.935	82.559	0.719	0.000	0.66		159.1	SURCHARGED
2A2_15-1.006	2A2_15-7	15 minute 100 year Winter I+40%	82.655	82.439	0.934	0.000	0.84		200.7	FLOOD RISK
2A2_15-1.007	2A2_15-8	15 minute 100 year Winter I+40%	82.320	82.241	1.071	0.052	0.92		221.5	FLOOD
2A2_15-1.008	2A2_15-9	15 minute 100 year Winter I+40%	81.985	81.971	1.136	0.000	0.94		226.2	FLOOD RISK
2A2_15-1.009	2A2_15-10	15 minute 100 year Winter I+40%	81.650	81.650	1.150	0.289	1.00		239.0	FLOOD
2A2_15-1.010	2A2_15-11	15 minute 100 year Winter I+40%	81.315	81.317	1.152	2.265	1.00		240.2	FLOOD
2A2_15-1.011	2A2_15-12	30 minute 100 year Winter I+40%	80.981	80.982	1.151	0.827	1.04		249.4	FLOOD
2A2_15-1.012	2A2_15-13	30 minute 100 year Winter I+40%	80.615	80.626	1.131	11.583	0.95		228.5	FLOOD
2A2_15-1.013	2A2_15-14	30 minute 100 year Winter I+40%	80.310	80.337	1.177	26.896	0.67		205.1	FLOOD
2A2_15-1.014	2A2_15-15	60 minute 100 year Winter I+40%	79.915	79.014	0.389	0.000	0.83		207.8	SURCHARGED
2A2_15-1.015	2A2_15-16	60 minute 100 year Winter I+40%	79.548	78.814	0.556	0.000	0.76		197.7	SURCHARGED
2A2_15-1.016	2A2_15-17	60 minute 100 year Winter I+40%	79.157	78.607	0.740	0.000	0.74		191.5	SURCHARGED
2A2_15-1.017	2A2_15-18	60 minute 100 year Winter I+40%	78.773	78.394	0.911	0.000	0.75		194.4	SURCHARGED
2A2_15-1.018	2A2_15-19	60 minute 100 year Winter I+40%	78.385	78.173	1.078	0.000	0.81		197.7	FLOOD RISK
2A2_15-1.019	2A2_15-20	60 minute 100 year Winter I+40%	78.041	77.948	1.197	0.000	0.99		198.7	FLOOD RISK
2A2_15-1.020	2A2_15-21	30 minute 100 year Winter I+40%	77.913	75.541	-0.061	0.000	0.85		201.6	OK
2A2_15-1.021	2A2_15-22	30 minute 100 year Winter I+40%	75.474	75.413	-0.061	0.000	0.98		201.9	FLOOD RISK*