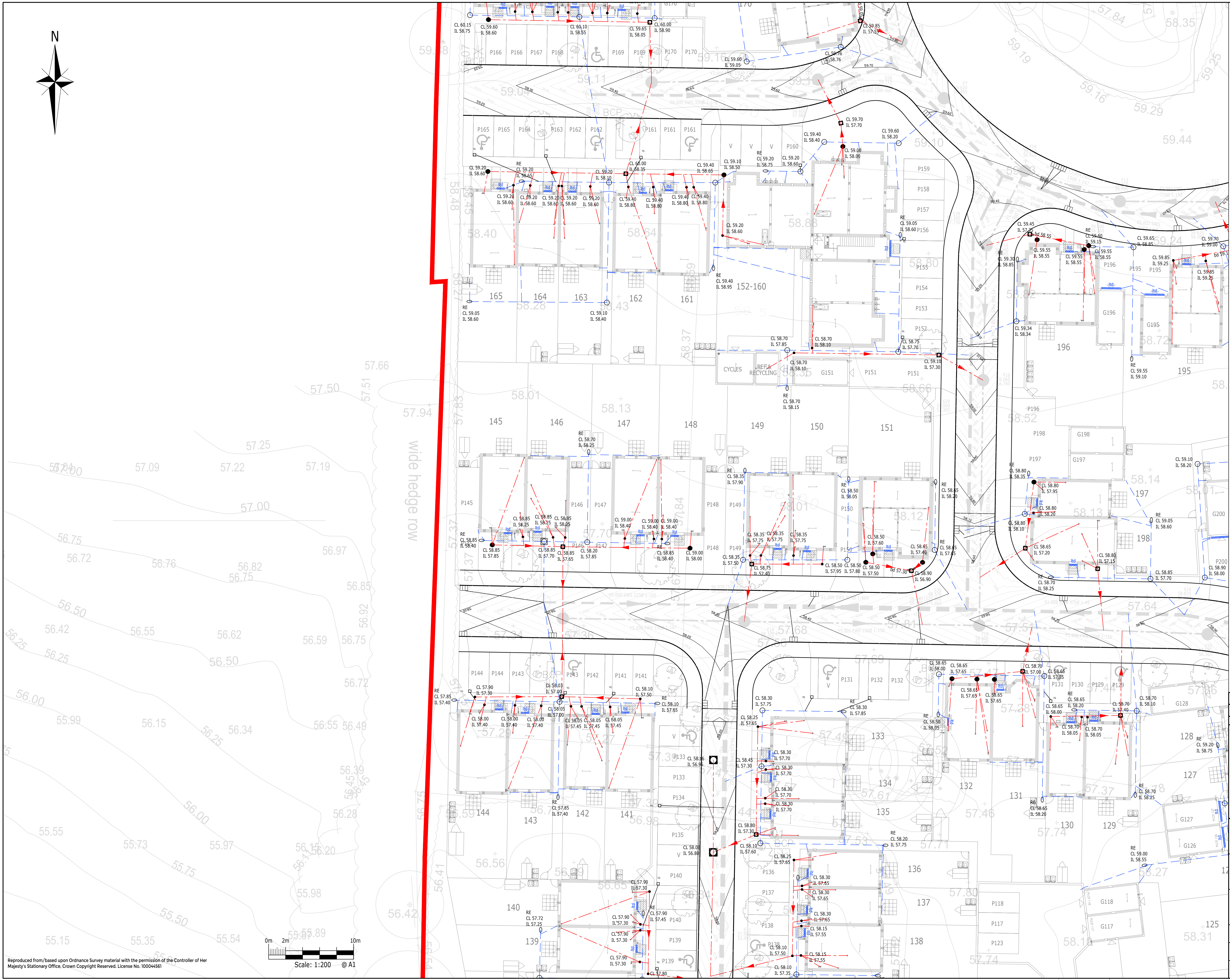
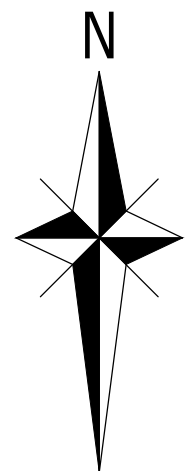
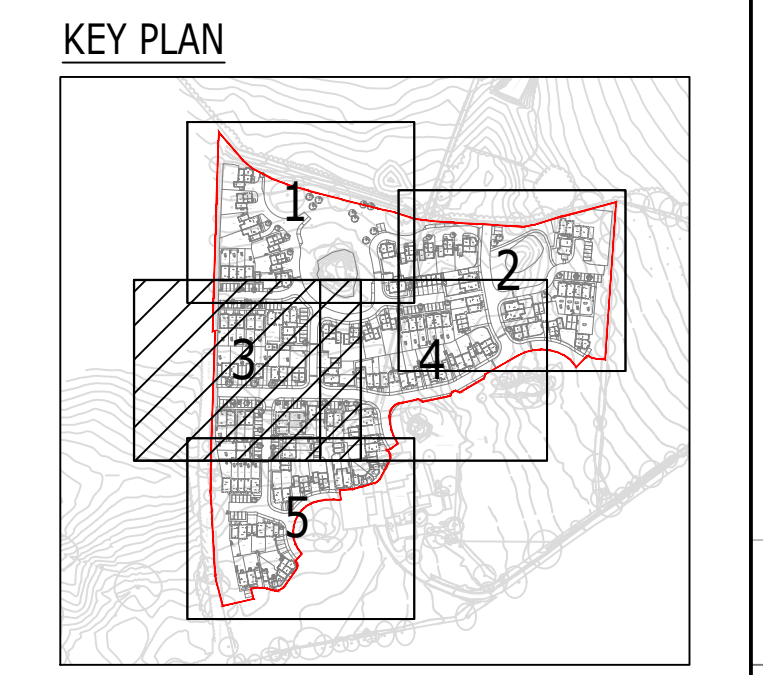




- NOTES:
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
 2. DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.
 3. ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES UNLESS OTHERWISE STATED.
 4. ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
 5. NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.
 6. ALL ADOPTABLE DRAINAGE WORKS SUBJECT TO SOUTHERN WATER'S APPROVAL.
 7. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY FULLY WITH KCC DESIGN GUIDE, SPECIFICATION FOR HIGHWAY WORKS AND THE LOCAL AUTHORITY SPECIFICATION FOR ROAD CONSTRUCTION AND STANDARD DETAILS.
 8. ALL EXCAVATED MATERIAL SHALL BE SUBJECT TO WAC TESTING AND REUSED ON SITE WHERE SUITABLE IN ACCORDANCE WITH THE MATERIALS MANAGEMENT PLAN.
 9. ALL EXCAVATED MATERIAL NOT SUITABLE FOR REUSE ON SITE SHALL BE DISPOSED OF AT AN APPROVED TIP OFF-SITE.
 10. THE PUBLIC HIGHWAY AND WORKS WILL BE KEPT CLEAN AND FREE OF DEBRIS BY USE OF WHEEL WASHING FACILITIES AND ROAD SWEEPERS TO THE COUNCIL'S SATISFACTION.
 11. ALL SETTING OUT, RESIDENTIAL CHAMBERS, COVERS AND BOX COVERS SHALL BE AGREED ON-SITE WITH THE ENGINEER, PRIOR TO THE COMMENCEMENT OF THE WORKS.
 12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS FROM THE LOCAL AUTHORITY PRIOR TO COMMENCING WORKS ON THE HIGHWAY.
 13. NO DOORS, WINDOWS, GATES ETC. SHOULD OPEN OVER THE ADOPTABLE HIGHWAY AND THERE SHOULD BE NO PROJECTING RAIN WATER DOWN PIPES OR OVERHANGING EAVES FROM ROOFS.
 14. NO SURFACE WATER RUN-OFF FROM PRIVATE AREAS OR HIGHWAY WATER FLOWING INTO THE PRIVATE AREAS SHALL DISCHARGE ONTO THE ADOPTABLE HIGHWAY.
 15. VISIBILITY SPLAYS 1.5x1.5m ARE REQUIRED EITHER SIDE OF PRIVATE DRIVES AND ACCESSES, AND THERE SHALL BE NO PLANTING OVER 600mm IN HEIGHT IN THESE ZONES.
 16. 'T'- MARKS DIRECTION OF OWNERSHIP AND DIRECTION OF POSTS/ARIS RAILS - TO BE ESTABLISHED FROM CONVEYANCE PLANS.



CONSTRUCTION
ISSUE

REFER TO DRAWING
192931-081 FOR KEY

CI	CONSTRUCTION ISSUE	JH	DP	DM	07.08.2020
TI	TENDER ISSUE	DAM	DP	DM	17.07.2020
Rev	Description	Drm	Chk	App	Date

ARDENT CONSULTING ENGINEERS

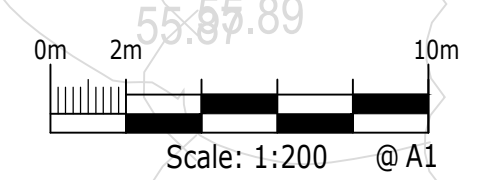
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E-mail: enquiries@ardent-ce.co.uk

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SAFETY
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PROFESSIONAL

Client					
LINDEN HOMES SOUTH					
Project Title:					
WOODCROFT LANE, LOVEDEAN, PHASE 2					
Drawing Title:					
PLOT DRAINAGE SHEET 3					
A1 Scale	Date	Designed by			
1:200	JUNE 2020	DP			
Drawn by	Checked by	Approved by			
JJ	DP	DM			
Drawing Number					Rev
192931-083					C1





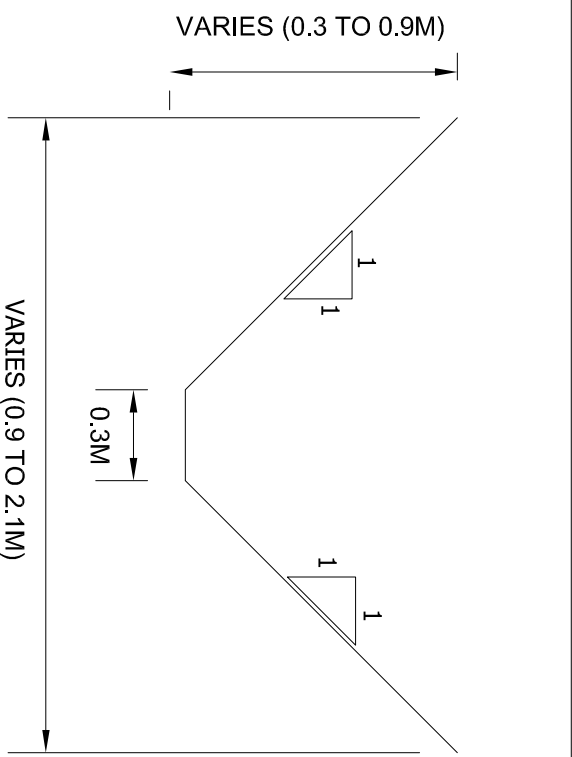
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16. 'T'- MARKS DIRECTION OF OWNERSHIP AND DIRECTION OF POSTS/ARIS RAILS - TO BE ESTABLISH FROM CONVEYANCE PLANS.

REFER TO DRAWING
192931-081 FOR KEY

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Certification

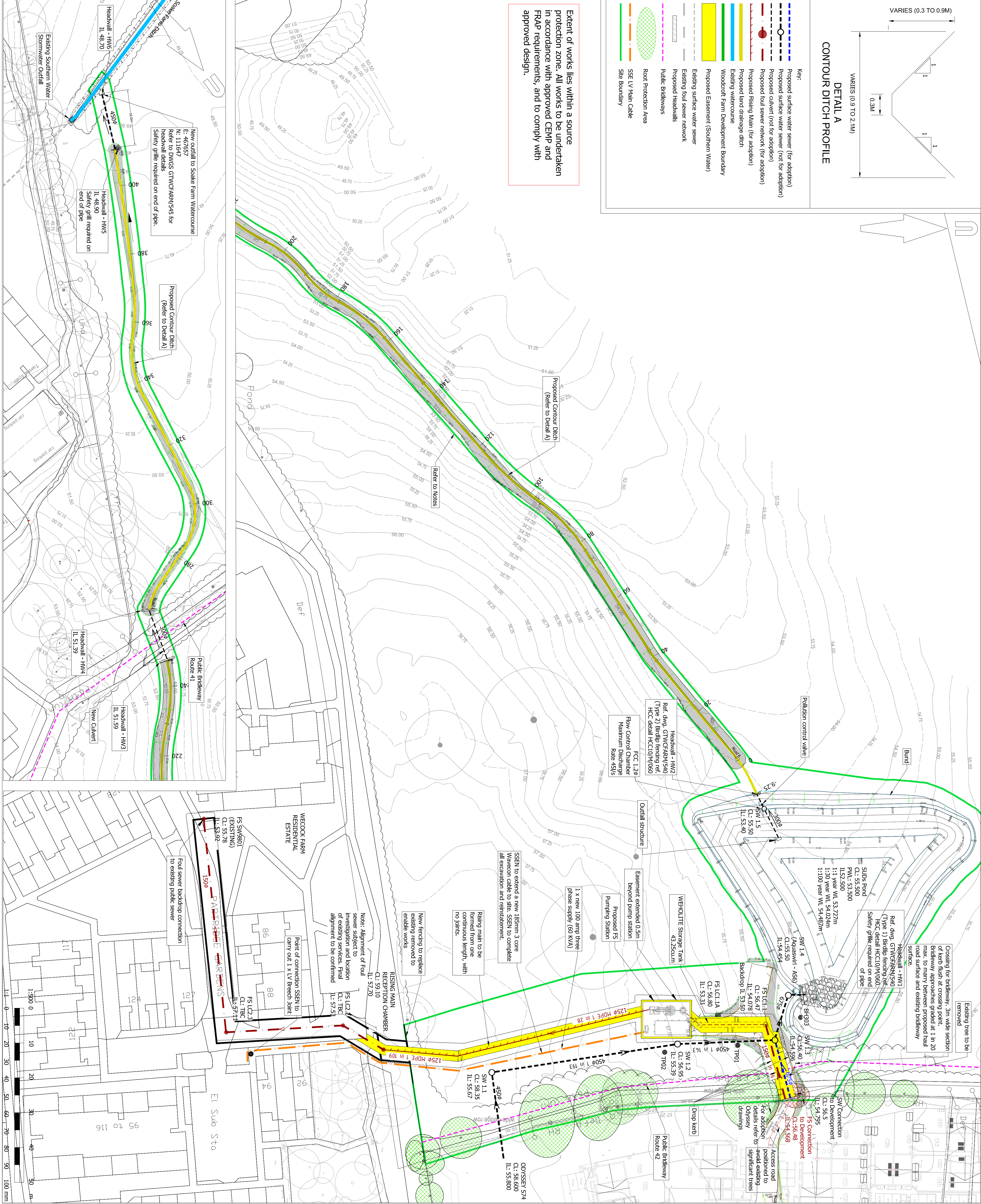
Drawing Number	192931-085	Rev C1
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DETAIL A
CONTOUR DITCH PROFILE

- Key:
- Proposed surface water sewer (for adoption)
 - Proposed surface water sewer (not for adoption)
 - Proposed Culvert (not for adoption)
 - Proposed foul sewer network (for adoption)
 - Proposed Rising Main (for adoption)
 - Proposed land drainage ditch
 - Existing watercourse
 - Woodcroft Farm Development Boundary
 - Proposed Easement (Southern Water)
 - Existing surface water sewer
 - Existing foul sewer network
 - Proposed Headwalls
 - Public Bridleways
 - Root Protection Area
 - SSE LV Main Cable
 - Site Boundary

Extent of works lies within a source protection zone. All works to be undertaken in accordance with approved CEMP and FRAP requirements, and to comply with approved design.

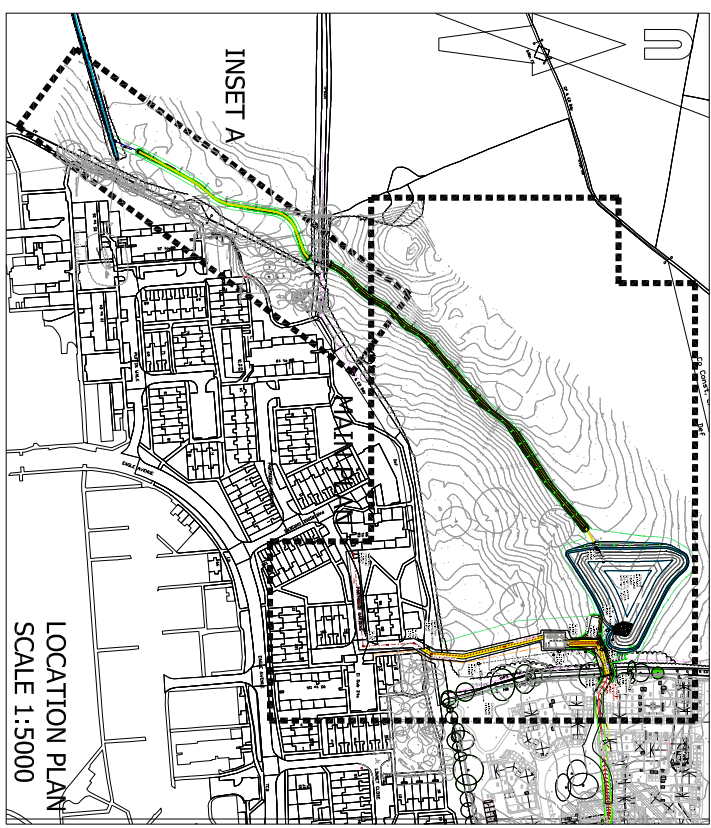


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A1 ORIGINAL

Notes:

- Refer to Dwg. GTWCFARM/DR/13 for cross sections.
- Refer to Dwg. GTWCFARM/DR/12 for ditch long section.
- Refer to PDAS Report REF: PR10514 for pump station details.
- Refer to PDAS Dwg REF: PR10514-006 for foul sewer storage tank details.
- Alignment of LV and Foul Sewer subject to SSE and SW approval respectively.
- Stormwater network to be built to SFA adoptable standard for future adoption.
- Headwall - HW1: End of pipe to be fitted with security grating, suitable for 750mm diameter pipe. HW5 and 6: Grille suitable for 450mm diameter pipe. Design to be submitted for approval prior to construction.
- Safety grille on pipes as per SFA 7th edition, figure C.6.



FOR CONSTRUCTION

P	Eastment dimensions added. Site boundary added (LS)	RHA	16/07/2020
O	Drawing revised following Southern Water comments	RHA	14/02/2020
N	Construction Issue (LS)	RHA	27/01/2020
M	Invert levels adjusted (LS)	RHA	20/01/2020
L	Bridleway crossing removed to create head route (LS)	RHA	21/12/2019
K	Pipe diameter revised. Security grating notes added (LS)	RHA	11/12/2019
J	Accessway indicated	RHA	30/08/2019
I	Notes amended. Bedding IL & FS LCL1 added (LS)	RHA	14/10/2019
H	Invert levels adjusted. Rising main added (LS)	RHA	16/09/2019
G	Drainage levels revised as detailed (KCB)	RHA	26/06/2019
F	Adjustments to access road and notes. Tender Issue (LS)	RHA	10/05/2019
E	Pump Station RM and LV revised.	RHA	12/03/2019
D	Pump Station RM and LV revised.	RHA	04/03/2019
C	SSEN supply added. (KCB)	RHA	15/01/2019
B	General Revisions	RHA	11/12/2018
A	General Design Development	RHA	27/11/18

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www.mayerbrown.co.uk

granger plc

WOODCROFT FARM
HAMPSHIRE

scale	AS SHOWN	drawn by	KDB	checked by	RHA
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date JUNE 2018
title OFF-SITE DRAINAGE
SURFACE AND FOUL WATER PROVISION
GENERAL LAYOUT

drawing number	GTWCFARM/DR/10	rev.	P
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Appendix B

Hydraulic Calculations

Ardent Consulting Engineers		Page 1
Third Floor, The Hallmark Building 52-56 Leadenhall Street London, EC3M5JE	Woodcroft Lane, Lovedean Surface Water Network 1	
Date 10/08/2020 10:21	Designed by JH	
File 192931 Lovedean.MDX	Checked by DP	
Innovyze	Network 2019.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for SW Network

Pipe Sizes ACE-PIPE Manhole Sizes ACE-MH

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.300	Add Flow / Climate Change (%)	0
Ratio R	0.350	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
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)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	20.334	0.070	290.5	0.050	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.001	20.169	0.070	288.1	0.050	0.00	0.0	0.600	o	300	Pipe/Conduit	
S2.000	9.000	0.270	33.3	0.120	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.002	18.812	0.065	289.4	0.030	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.003	18.121	0.060	300.0	0.060	0.00	0.0	0.600	o	300	Pipe/Conduit	
S3.000	15.030	1.165	12.9	0.040	5.00	0.0	0.600	o	225	Pipe/Conduit	
S3.001	16.813	1.300	12.9	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.004	20.664	0.350	59.0	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.005	25.234	1.005	25.1	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.006	41.484	1.600	25.9	0.040	0.00	0.0	0.600	o	300	Pipe/Conduit	
S4.000	11.929	0.415	28.7	0.050	5.00	0.0	0.600	o	300	Pipe/Conduit	
S4.001	14.148	0.475	29.8	0.030	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)
S1.000	50.00	5.37	60.230	0.050	0.0	0.0	0.0	0.92	64.8	6.8
S1.001	50.00	5.73	60.160	0.100	0.0	0.0	0.0	0.92	65.1	13.5
S2.000	50.00	5.05	60.360	0.120	0.0	0.0	0.0	2.73	193.2	16.2
S1.002	50.00	6.08	60.090	0.250	0.0	0.0	0.0	0.92	65.0	33.9
S1.003	50.00	6.41	60.025	0.310	0.0	0.0	0.0	0.90	63.8	42.0
S3.000	50.00	5.07	62.505	0.040	0.0	0.0	0.0	3.66	145.6	5.4
S3.001	50.00	5.14	61.340	0.060	0.0	0.0	0.0	3.66	145.5	8.1
S1.004	50.00	6.58	59.965	0.390	0.0	0.0	0.0	2.05	144.9	52.8
S1.005	50.00	6.71	59.615	0.410	0.0	0.0	0.0	3.15	222.7	55.5
S1.006	50.00	6.93	58.610	0.450	0.0	0.0	0.0	3.10	219.1	60.9
S4.000	50.00	5.07	57.900	0.050	0.0	0.0	0.0	2.94	208.1	6.8
S4.001	50.00	5.15	57.485	0.080	0.0	0.0	0.0	2.89	204.5	10.8

Ardent Consulting Engineers		Page 2
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Date 10/08/2020 10:21 File 192931 Lovedean.MDX	Designed by JH Checked by DP	
Innovyze	Network 2019.1	

Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.007	22.203	0.075	296.0	0.090	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.008	25.572	0.070	365.3	0.040	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.000	18.863	0.310	60.8	0.070	5.00	0.0	0.600	o	375	Pipe/Conduit	
S6.000	9.000	0.150	60.0	0.120	5.00	0.0	0.600	o	375	Pipe/Conduit	
S5.001	9.853	0.165	59.7	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.002	10.991	0.185	59.4	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.003	10.833	0.180	60.2	0.010	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.004	12.329	0.205	60.1	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S7.000	12.686	0.405	31.3	0.080	5.00	0.0	0.600	o	300	Pipe/Conduit	
S7.001	10.237	0.340	30.1	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit	
S7.002	16.051	0.535	30.0	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit	
S8.000	24.473	0.070	349.6	0.100	5.00	0.0	0.600	o	375	Pipe/Conduit	
S8.001	11.544	0.035	329.8	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S7.003	18.491	0.050	369.8	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.005	7.876	0.165	47.7	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.006	20.055	0.425	47.2	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.007	23.908	1.015	23.6	0.040	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.009	28.210	0.070	403.0	0.090	0.00	0.0	0.600	o	525	Pipe/Conduit	
S9.000	21.612	0.205	105.4	0.090	5.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.007	50.00	7.29	56.935	0.620	0.0	0.0	0.0	1.05	115.7	84.0
S1.008	50.00	7.74	56.860	0.660	0.0	0.0	0.0	0.94	104.0	89.4
S5.000	50.00	5.14	58.940	0.070	0.0	0.0	0.0	2.33	256.9	9.5
S6.000	50.00	5.06	58.780	0.120	0.0	0.0	0.0	2.34	258.8	16.2
S5.001	50.00	5.21	58.630	0.210	0.0	0.0	0.0	2.35	259.4	28.4
S5.002	50.00	5.28	58.465	0.230	0.0	0.0	0.0	2.35	260.1	31.1
S5.003	50.00	5.36	58.280	0.240	0.0	0.0	0.0	2.34	258.4	32.5
S5.004	50.00	5.45	58.100	0.260	0.0	0.0	0.0	2.34	258.5	35.2
S7.000	50.00	5.07	59.300	0.080	0.0	0.0	0.0	2.82	199.3	10.8
S7.001	50.00	5.13	58.895	0.100	0.0	0.0	0.0	2.88	203.3	13.5
S7.002	50.00	5.23	58.555	0.120	0.0	0.0	0.0	2.88	203.6	16.2
S8.000	50.00	5.42	58.050	0.100	0.0	0.0	0.0	0.96	106.4	13.5
S8.001	50.00	5.62	57.980	0.120	0.0	0.0	0.0	0.99	109.6	16.2
S7.003	50.00	5.95	57.945	0.260	0.0	0.0	0.0	0.94	103.4	35.2
S5.005	50.00	6.00	57.895	0.540	0.0	0.0	0.0	2.63	290.3	73.1
S5.006	50.00	6.12	57.730	0.560	0.0	0.0	0.0	2.64	292.0	75.8
S5.007	50.00	6.23	57.305	0.600	0.0	0.0	0.0	3.75	413.8	81.2
S1.009	50.00	8.16	56.140	1.350	0.0	0.0	0.0	1.11	240.2	182.8
S9.000	50.00	5.28	56.575	0.090	0.0	0.0	0.0	1.27	50.6	12.2

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Date 10/08/2020 10:21 File 192931 Lovedean.MDX	Designed by JH Checked by DP	
Innovyze	Network 2019.1	

Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.010	37.670	0.075	502.3	0.050	0.00	0.0	0.600	o	525	Pipe/Conduit	
S1.011	35.281	0.070	504.0	0.080	0.00	0.0	0.600	o	525	Pipe/Conduit	
S10.000	9.043	0.045	201.0	0.070	5.00	0.0	0.600	o	225	Pipe/Conduit	
S10.001	8.593	0.040	214.8	0.010	0.00	0.0	0.600	o	225	Pipe/Conduit	
S10.002	11.066	0.050	221.3	0.010	0.00	0.0	0.600	o	225	Pipe/Conduit	
S11.000	8.174	0.155	52.7	0.040	5.00	0.0	0.600	o	225	Pipe/Conduit	
S11.001	11.232	0.210	53.5	0.010	0.00	0.0	0.600	o	225	Pipe/Conduit	
S10.003	12.207	0.410	29.8	0.010	0.00	0.0	0.600	o	225	Pipe/Conduit	
S10.004	5.729	0.175	32.7	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.012	24.390	1.010	24.1	0.030	0.00	0.0	0.600	o	525	Pipe/Conduit	
S1.013	11.599	0.470	24.7	0.070	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)
S1.010	49.03	8.80	56.070	1.490	0.0	0.0	0.0	0.99	214.9	197.8
S1.011	47.44	9.39	55.995	1.570	0.0	0.0	0.0	0.99	214.5	201.7
S10.000	50.00	5.16	56.945	0.070	0.0	0.0	0.0	0.92	36.5	9.5
S10.001	50.00	5.33	56.900	0.080	0.0	0.0	0.0	0.89	35.3	10.8
S10.002	50.00	5.54	56.860	0.090	0.0	0.0	0.0	0.87	34.8	12.2
S11.000	50.00	5.08	57.175	0.040	0.0	0.0	0.0	1.81	71.8	5.4
S11.001	50.00	5.18	57.020	0.050	0.0	0.0	0.0	1.79	71.3	6.8
S10.003	50.00	5.62	56.810	0.150	0.0	0.0	0.0	2.41	95.7	20.3
S10.004	50.00	5.66	56.400	0.170	0.0	0.0	0.0	2.29	91.2	23.0
S1.012	47.21	9.48	55.925	1.770	0.0	0.0	0.0	4.57	989.7	226.3
S1.013	47.11	9.52	54.915	1.840	0.0	0.0	0.0	4.52	979.0	234.7

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Manhole Schedules for SW Network

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)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1	61.730	1.500	Open Manhole	1200	S1.000	60.230	300				
S2	61.510	1.350	Open Manhole	1200	S1.001	60.160	300	S1.000	60.160	300	
S3	61.860	1.500	Open Manhole	1200	S2.000	60.360	300				
S4	61.710	1.620	Open Manhole	1200	S1.002	60.090	300	S1.001	60.090	300	
								S2.000	60.090	300	
S5	62.190	2.165	Open Manhole	1200	S1.003	60.025	300	S1.002	60.025	300	
S6	63.930	1.425	Open Manhole	1200	S3.000	62.505	225				
S7	63.370	2.030	Open Manhole	1200	S3.001	61.340	225	S3.000	61.340	225	
S8	62.810	2.845	Open Manhole	1200	S1.004	59.965	300	S1.003	59.965	300	
								S3.001	60.040	225	
S9	61.960	2.345	Open Manhole	1200	S1.005	59.615	300	S1.004	59.615	300	
S10	60.990	2.380	Open Manhole	1200	S1.006	58.610	300	S1.005	58.610	300	
S11	59.400	1.500	Open Manhole	1200	S4.000	57.900	300				
S12	59.390	1.905	Open Manhole	1200	S4.001	57.485	300	S4.000	57.485	300	
S13	59.390	2.455	Open Manhole	1500	S1.007	56.935	375	S1.006	57.010	300	
								S4.001	57.010	300	
S14	58.835	1.975	Open Manhole	1500	S1.008	56.860	375	S1.007	56.860	375	
S15	60.260	1.320	Open Manhole	1500	S5.000	58.940	375				
S16	60.090	1.310	Open Manhole	1500	S6.000	58.780	375				
S17	59.920	1.290	Open Manhole	1500	S5.001	58.630	375	S5.000	58.630	375	
								S6.000	58.630	375	
S18	59.800	1.335	Open Manhole	1500	S5.002	58.465	375	S5.001	58.465	375	
S19	59.620	1.340	Open Manhole	1500	S5.003	58.280	375	S5.002	58.280	375	
S20	59.500	1.400	Open Manhole	1500	S5.004	58.100	375	S5.003	58.100	375	
S21	60.800	1.500	Open Manhole	1200	S7.000	59.300	300				
S22	60.470	1.575	Open Manhole	1200	S7.001	58.895	300	S7.000	58.895	300	
S23	60.210	1.655	Open Manhole	1200	S7.002	58.555	300	S7.001	58.555	300	
S24	59.365	1.315	Open Manhole	1500	S8.000	58.050	375				
S25	59.600	1.620	Open Manhole	1500	S8.001	57.980	375	S8.000	57.980	375	
S26	59.715	1.770	Open Manhole	1500	S7.003	57.945	375	S7.002	58.020	300	
								S8.001	57.945	375	
S27	59.470	1.575	Open Manhole	1500	S5.005	57.895	375	S5.004	57.895	375	
								S7.003	57.895	375	
S28	59.300	1.570	Open Manhole	1500	S5.006	57.730	375	S5.005	57.730	375	
S29	59.000	1.695	Open Manhole	1500	S5.007	57.305	375	S5.006	57.305	375	
S30	58.570	2.430	Open Manhole	1500	S1.009	56.140	525	S1.008	56.790	375	500
								S5.007	56.290	375	
S31	58.070	1.495	Open Manhole	1200	S9.000	56.575	225				
S32	58.280	2.210	Open Manhole	1500	S1.010	56.070	525	S1.009	56.070	525	
								S9.000	56.370	225	
S33	57.980	1.985	Open Manhole	1500	S1.011	55.995	525	S1.010	55.995	525	
S34	58.390	1.445	Open Manhole	1200	S10.000	56.945	225				
S35	58.265	1.365	Open Manhole	1200	S10.001	56.900	225	S10.000	56.900	225	
S36	58.220	1.360	Open Manhole	1200	S10.002	56.860	225	S10.001	56.860	225	
S37	58.600	1.425	Open Manhole	1200	S11.000	57.175	225				
S38	58.420	1.400	Open Manhole	1200	S11.001	57.020	225	S11.000	57.020	225	

Manhole Schedules for SW Network

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)
S39	58.250	1.440	Open Manhole	1200	S10.003	56.810	225	S10.002	56.810	225	
								S11.001	56.810	225	
S40	57.810	1.410	Open Manhole	1200	S10.004	56.400	225	S10.003	56.400	225	
S41	57.600	1.675	Open Manhole	1500	S1.012	55.925	525	S1.011	55.925	525	
								S10.004	56.225	225	
S42	56.800	1.885	Open Manhole	1500	S1.013	54.915	525	S1.012	54.915	525	
SOutfall	56.500	2.055	Open Manhole	1500		OUTFALL		S1.013	54.445	525	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S1	468187.829	112140.612	468187.829	112140.612	Required	
S2	468187.071	112120.292	468187.071	112120.292	Required	
S3	468199.498	112102.070	468199.498	112102.070	Required	
S4	468190.647	112100.443	468190.647	112100.443	Required	
S5	468193.982	112081.929	468193.982	112081.929	Required	
S6	468234.230	112068.190	468234.230	112068.190	Required	
S7	468219.418	112070.744	468219.418	112070.744	Required	
S8	468203.196	112066.325	468203.196	112066.325	Required	
S9	468185.688	112055.350	468185.688	112055.350	Required	
S10	468163.598	112043.152	468163.598	112043.152	Required	
S11	468126.350	112009.436	468126.350	112009.436	Required	
S12	468123.069	112020.904	468123.069	112020.904	Required	
S13	468122.913	112035.052	468122.913	112035.052	Required	
S14	468101.045	112038.896	468101.045	112038.896	Required	

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Manhole Schedules for SW Network

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S15	468118.252	112114.349	468118.252	112114.349	Required	
S16	468128.386	112095.565	468128.386	112095.565	Required	
S17	468119.386	112095.520	468119.386	112095.520	Required	
S18	468112.753	112088.235	468112.753	112088.235	Required	
S19	468102.083	112085.594	468102.083	112085.594	Required	
S20	468091.287	112086.476	468091.287	112086.476	Required	
S21	468061.479	112141.960	468061.479	112141.960	Required	
S22	468064.989	112129.769	468064.989	112129.769	Required	
S23	468064.167	112119.565	468064.167	112119.565	Required	
S24	468031.277	112100.101	468031.277	112100.101	Required	
S25	468055.749	112099.887	468055.749	112099.887	Required	
S26	468066.644	112103.706	468066.644	112103.706	Required	
S27	468079.658	112090.570	468079.658	112090.570	Required	
S28	468076.203	112083.491	468076.203	112083.491	Required	
S29	468075.874	112063.439	468075.874	112063.439	Required	
S30	468075.481	112039.534	468075.481	112039.534	Required	
S31	468025.667	112040.395	468025.667	112040.395	Required	
S32	468047.275	112040.018	468047.275	112040.018	Required	
S33	468046.657	112002.354	468046.657	112002.354	Required	

Manhole Schedules for SW Network

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S34	468082.952	111973.302	468082.952	111973.302	Required	
S35	468074.030	111971.827	468074.030	111971.827	Required	
S36	468066.864	111967.085	468066.864	111967.085	Required	
S37	468062.936	111939.154	468062.936	111939.154	Required	
S38	468060.180	111946.849	468060.180	111946.849	Required	
S39	468060.436	111958.078	468060.436	111958.078	Required	
S40	468048.910	111962.097	468048.910	111962.097	Required	
S41	468046.077	111967.077	468046.077	111967.077	Required	
S42	468021.687	111967.077	468021.687	111967.077	Required	
SOutfall	468011.233	111972.102			No Entry	

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PIPELINE SCHEDULES for SW Network

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)
S1.000	o	300	S1	61.730	60.230	1.200	Open Manhole	1200
S1.001	o	300	S2	61.510	60.160	1.050	Open Manhole	1200
S2.000	o	300	S3	61.860	60.360	1.200	Open Manhole	1200
S1.002	o	300	S4	61.710	60.090	1.320	Open Manhole	1200
S1.003	o	300	S5	62.190	60.025	1.865	Open Manhole	1200
S3.000	o	225	S6	63.930	62.505	1.200	Open Manhole	1200
S3.001	o	225	S7	63.370	61.340	1.805	Open Manhole	1200
S1.004	o	300	S8	62.810	59.965	2.545	Open Manhole	1200
S1.005	o	300	S9	61.960	59.615	2.045	Open Manhole	1200
S1.006	o	300	S10	60.990	58.610	2.080	Open Manhole	1200
S4.000	o	300	S11	59.400	57.900	1.200	Open Manhole	1200
S4.001	o	300	S12	59.390	57.485	1.605	Open Manhole	1200
S1.007	o	375	S13	59.390	56.935	2.080	Open Manhole	1500
S1.008	o	375	S14	58.835	56.860	1.600	Open Manhole	1500
S5.000	o	375	S15	60.260	58.940	0.945	Open Manhole	1500
S6.000	o	375	S16	60.090	58.780	0.935	Open Manhole	1500
S5.001	o	375	S17	59.920	58.630	0.915	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)
S1.000	20.334	290.5	S2	61.510	60.160	1.050	Open Manhole	1200
S1.001	20.169	288.1	S4	61.710	60.090	1.320	Open Manhole	1200
S2.000	9.000	33.3	S4	61.710	60.090	1.320	Open Manhole	1200
S1.002	18.812	289.4	S5	62.190	60.025	1.865	Open Manhole	1200
S1.003	18.121	300.0	S8	62.810	59.965	2.545	Open Manhole	1200
S3.000	15.030	12.9	S7	63.370	61.340	1.805	Open Manhole	1200
S3.001	16.813	12.9	S8	62.810	60.040	2.545	Open Manhole	1200
S1.004	20.664	59.0	S9	61.960	59.615	2.045	Open Manhole	1200
S1.005	25.234	25.1	S10	60.990	58.610	2.080	Open Manhole	1200
S1.006	41.484	25.9	S13	59.390	57.010	2.080	Open Manhole	1500
S4.000	11.929	28.7	S12	59.390	57.485	1.605	Open Manhole	1200
S4.001	14.148	29.8	S13	59.390	57.010	2.080	Open Manhole	1500
S1.007	22.203	296.0	S14	58.835	56.860	1.600	Open Manhole	1500
S1.008	25.572	365.3	S30	58.570	56.790	1.405	Open Manhole	1500
S5.000	18.863	60.8	S17	59.920	58.630	0.915	Open Manhole	1500
S6.000	9.000	60.0	S17	59.920	58.630	0.915	Open Manhole	1500
S5.001	9.853	59.7	S18	59.800	58.465	0.960	Open Manhole	1500

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PIPELINE SCHEDULES for SW Network

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)
S5.002	o	375	S18	59.800	58.465	0.960	Open Manhole	1500
S5.003	o	375	S19	59.620	58.280	0.965	Open Manhole	1500
S5.004	o	375	S20	59.500	58.100	1.025	Open Manhole	1500
S7.000	o	300	S21	60.800	59.300	1.200	Open Manhole	1200
S7.001	o	300	S22	60.470	58.895	1.275	Open Manhole	1200
S7.002	o	300	S23	60.210	58.555	1.355	Open Manhole	1200
S8.000	o	375	S24	59.365	58.050	0.940	Open Manhole	1500
S8.001	o	375	S25	59.600	57.980	1.245	Open Manhole	1500
S7.003	o	375	S26	59.715	57.945	1.395	Open Manhole	1500
S5.005	o	375	S27	59.470	57.895	1.200	Open Manhole	1500
S5.006	o	375	S28	59.300	57.730	1.195	Open Manhole	1500
S5.007	o	375	S29	59.000	57.305	1.320	Open Manhole	1500
S1.009	o	525	S30	58.570	56.140	1.905	Open Manhole	1500
S9.000	o	225	S31	58.070	56.575	1.270	Open Manhole	1200
S1.010	o	525	S32	58.280	56.070	1.685	Open Manhole	1500
S1.011	o	525	S33	57.980	55.995	1.460	Open Manhole	1500
S10.000	o	225	S34	58.390	56.945	1.220	Open Manhole	1200
S10.001	o	225	S35	58.265	56.900	1.140	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)
S5.002	10.991	59.4	S19	59.620	58.280	0.965	Open Manhole	1500
S5.003	10.833	60.2	S20	59.500	58.100	1.025	Open Manhole	1500
S5.004	12.329	60.1	S27	59.470	57.895	1.200	Open Manhole	1500
S7.000	12.686	31.3	S22	60.470	58.895	1.275	Open Manhole	1200
S7.001	10.237	30.1	S23	60.210	58.555	1.355	Open Manhole	1200
S7.002	16.051	30.0	S26	59.715	58.020	1.395	Open Manhole	1500
S8.000	24.473	349.6	S25	59.600	57.980	1.245	Open Manhole	1500
S8.001	11.544	329.8	S26	59.715	57.945	1.395	Open Manhole	1500
S7.003	18.491	369.8	S27	59.470	57.895	1.200	Open Manhole	1500
S5.005	7.876	47.7	S28	59.300	57.730	1.195	Open Manhole	1500
S5.006	20.055	47.2	S29	59.000	57.305	1.320	Open Manhole	1500
S5.007	23.908	23.6	S30	58.570	56.290	1.905	Open Manhole	1500
S1.009	28.210	403.0	S32	58.280	56.070	1.685	Open Manhole	1500
S9.000	21.612	105.4	S32	58.280	56.370	1.685	Open Manhole	1500
S1.010	37.670	502.3	S33	57.980	55.995	1.460	Open Manhole	1500
S1.011	35.281	504.0	S41	57.600	55.925	1.150	Open Manhole	1500
S10.000	9.043	201.0	S35	58.265	56.900	1.140	Open Manhole	1200
S10.001	8.593	214.8	S36	58.220	56.860	1.135	Open Manhole	1200

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PIPELINE SCHEDULES for SW Network

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)
S10.002	o	225	S36	58.220	56.860	1.135	Open Manhole	1200
S11.000	o	225	S37	58.600	57.175	1.200	Open Manhole	1200
S11.001	o	225	S38	58.420	57.020	1.175	Open Manhole	1200
S10.003	o	225	S39	58.250	56.810	1.215	Open Manhole	1200
S10.004	o	225	S40	57.810	56.400	1.185	Open Manhole	1200
S1.012	o	525	S41	57.600	55.925	1.150	Open Manhole	1500
S1.013	o	525	S42	56.800	54.915	1.360	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)
S10.002	11.066	221.3	S39	58.250	56.810	1.215	Open Manhole	1200
S11.000	8.174	52.7	S38	58.420	57.020	1.175	Open Manhole	1200
S11.001	11.232	53.5	S39	58.250	56.810	1.215	Open Manhole	1200
S10.003	12.207	29.8	S40	57.810	56.400	1.185	Open Manhole	1200
S10.004	5.729	32.7	S41	57.600	56.225	1.150	Open Manhole	1500
S1.012	24.390	24.1	S42	56.800	54.915	1.360	Open Manhole	1500
S1.013	11.599	24.7	SOutfall	56.500	54.445	1.530	Open Manhole	1500

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Area Summary for SW Network

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.050	0.050	0.050
1.001	-	-	100	0.050	0.050	0.050
2.000	-	-	100	0.120	0.120	0.120
1.002	-	-	100	0.030	0.030	0.030
1.003	-	-	100	0.060	0.060	0.060
3.000	-	-	100	0.040	0.040	0.040
3.001	-	-	100	0.020	0.020	0.020
1.004	-	-	100	0.020	0.020	0.020
1.005	-	-	100	0.020	0.020	0.020
1.006	-	-	100	0.040	0.040	0.040
4.000	-	-	100	0.050	0.050	0.050
4.001	-	-	100	0.030	0.030	0.030
1.007	-	-	100	0.090	0.090	0.090
1.008	-	-	100	0.040	0.040	0.040
5.000	-	-	100	0.070	0.070	0.070
6.000	-	-	100	0.120	0.120	0.120
5.001	-	-	100	0.020	0.020	0.020
5.002	-	-	100	0.020	0.020	0.020
5.003	-	-	100	0.010	0.010	0.010
5.004	-	-	100	0.020	0.020	0.020
7.000	-	-	100	0.080	0.080	0.080
7.001	-	-	100	0.020	0.020	0.020
7.002	-	-	100	0.020	0.020	0.020
8.000	-	-	100	0.100	0.100	0.100
8.001	-	-	100	0.020	0.020	0.020
7.003	-	-	100	0.020	0.020	0.020
5.005	-	-	100	0.020	0.020	0.020
5.006	-	-	100	0.020	0.020	0.020
5.007	-	-	100	0.040	0.040	0.040
1.009	-	-	100	0.090	0.090	0.090
9.000	-	-	100	0.090	0.090	0.090
1.010	-	-	100	0.050	0.050	0.050
1.011	-	-	100	0.080	0.080	0.080
10.000	-	-	100	0.070	0.070	0.070
10.001	-	-	100	0.010	0.010	0.010
10.002	-	-	100	0.010	0.010	0.010
11.000	-	-	100	0.040	0.040	0.040
11.001	-	-	100	0.010	0.010	0.010
10.003	-	-	100	0.010	0.010	0.010
10.004	-	-	100	0.020	0.020	0.020
1.012	-	-	100	0.030	0.030	0.030
1.013	-	-	100	0.070	0.070	0.070
				Total	Total	Total
				1.840	1.840	1.840

Free Flowing Outfall Details for SW Network

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.013	SOutfall	56.500	54.445	54.795	1500	0

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Simulation Criteria for SW Network

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1
Number of Input Hydrographs	0	Number of Offline Controls	0
Number of Online Controls	0	Number of Storage Structures	0
		Number of Time/Area Diagrams	0
		Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	5	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Storm Duration (mins)	30
Ratio R	0.350		

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.300 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.350 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)

Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 2, 30, 100
 Climate Change (%) 0, 0, 0

										Water	Surcharged	Flooded
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)	
S1.000	S1 15 Winter		2	+0%	30/15 Summer				60.325	-0.205	0.000	
S1.001	S2 15 Winter		2	+0%	30/15 Summer				60.301	-0.159	0.000	
S2.000	S3 15 Winter		2	+0%	100/15 Summer				60.438	-0.222	0.000	
S1.002	S4 15 Winter		2	+0%	30/15 Summer				60.281	-0.109	0.000	
S1.003	S5 15 Winter		2	+0%	30/15 Summer				60.231	-0.094	0.000	
S3.000	S6 15 Winter		2	+0%					62.538	-0.192	0.000	
S3.001	S7 15 Winter		2	+0%					61.380	-0.185	0.000	
S1.004	S8 15 Winter		2	+0%	100/15 Summer				60.103	-0.161	0.000	
S1.005	S9 15 Winter		2	+0%					59.725	-0.190	0.000	
S1.006	S10 15 Winter		2	+0%	100/15 Winter				58.723	-0.186	0.000	
S4.000	S11 15 Winter		2	+0%					57.944	-0.256	0.000	
S4.001	S12 15 Winter		2	+0%	100/15 Summer				57.539	-0.246	0.000	
S1.007	S13 15 Winter		2	+0%	30/15 Summer				57.219	-0.090	0.000	
S1.008	S14 15 Winter		2	+0%	30/15 Summer				57.157	-0.077	0.000	
S5.000	S15 15 Winter		2	+0%					58.996	-0.319	0.000	
S6.000	S16 15 Winter		2	+0%					58.870	-0.285	0.000	
S5.001	S17 15 Winter		2	+0%					58.749	-0.256	0.000	
S5.002	S18 15 Winter		2	+0%					58.584	-0.256	0.000	
S5.003	S19 15 Winter		2	+0%					58.402	-0.253	0.000	
S5.004	S20 15 Winter		2	+0%	100/15 Winter				58.222	-0.253	0.000	
S7.000	S21 15 Winter		2	+0%					59.358	-0.242	0.000	
S7.001	S22 15 Winter		2	+0%					58.961	-0.234	0.000	
S7.002	S23 15 Winter		2	+0%					58.621	-0.234	0.000	
S8.000	S24 15 Winter		2	+0%	100/15 Summer				58.180	-0.245	0.000	
S8.001	S25 15 Winter		2	+0%	100/15 Summer				58.148	-0.207	0.000	
S7.003	S26 15 Winter		2	+0%	100/15 Summer				58.136	-0.184	0.000	
S5.005	S27 15 Winter		2	+0%	100/15 Summer				58.087	-0.183	0.000	
S5.006	S28 15 Winter		2	+0%	100/15 Winter				57.882	-0.223	0.000	
S5.007	S29 15 Winter		2	+0%	100/15 Summer				57.432	-0.248	0.000	
S1.009	S30 15 Winter		2	+0%	30/15 Summer				56.665	0.000	0.000	
S9.000	S31 15 Winter		2	+0%	30/15 Summer				56.663	-0.137	0.000	
S1.010	S32 15 Winter		2	+0%	30/15 Summer				56.580	-0.015	0.000	
S1.011	S33 15 Winter		2	+0%	30/15 Summer				56.473	-0.047	0.000	
S10.000	S34 15 Winter		2	+0%	100/15 Summer				57.043	-0.127	0.000	
S10.001	S35 15 Winter		2	+0%	100/15 Summer				57.007	-0.118	0.000	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Flow / Cap.	Overflow (1/s)	Pipe Flow (1/s)	Status	Level Exceeded
S1.000	S1	0.14		8.0	OK	
S1.001	S2	0.25		14.3	OK	
S2.000	S3	0.15		19.9	OK	
S1.002	S4	0.65		36.3	OK	
S1.003	S5	0.81		44.2	OK	
S3.000	S6	0.05		6.6	OK	
S3.001	S7	0.07		9.4	OK	
S1.004	S8	0.44		55.3	OK	
S1.005	S9	0.29		57.8	OK	
S1.006	S10	0.31		62.7	OK	
S4.000	S11	0.05		8.3	OK	
S4.001	S12	0.07		12.4	OK	
S1.007	S13	0.86		84.5	OK	
S1.008	S14	0.99		89.0	OK	
S5.000	S15	0.05		11.6	OK	
S6.000	S16	0.13		19.8	OK	
S5.001	S17	0.21		34.1	OK	
S5.002	S18	0.22		37.2	OK	
S5.003	S19	0.23		38.6	OK	
S5.004	S20	0.23		41.2	OK	
S7.000	S21	0.08		13.2	OK	
S7.001	S22	0.11		15.9	OK	
S7.002	S23	0.11		18.8	OK	
S8.000	S24	0.17		16.0	OK	
S8.001	S25	0.23		18.1	OK	
S7.003	S26	0.45		38.6	OK	
S5.005	S27	0.52		82.3	OK	
S5.006	S28	0.35		85.0	OK	
S5.007	S29	0.25		89.8	OK	
S1.009	S30	0.92		183.1	OK	
S9.000	S31	0.32		14.8	OK	
S1.010	S32	1.00		184.8	OK	
S1.011	S33	1.00		183.6	OK	
S10.000	S34	0.39		11.6	OK	
S10.001	S35	0.45		13.0	OK	

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

		US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Water	Surcharged	Flooded
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level	Depth	Volume	
									(m)	(m)	(m³)	
S10.002	S36	15 Winter	2	+0%	100/15 Summer				56.971	-0.114	0.000	
S11.000	S37	15 Winter	2	+0%					57.227	-0.173	0.000	
S11.001	S38	15 Winter	2	+0%					57.075	-0.170	0.000	
S10.003	S39	15 Winter	2	+0%					56.893	-0.142	0.000	
S10.004	S40	15 Winter	2	+0%	100/15 Summer				56.506	-0.119	0.000	
S1.012	S41	15 Winter	2	+0%					56.107	-0.343	0.000	
S1.013	S42	15 Winter	2	+0%					55.144	-0.296	0.000	

		US/MH		Flow /	Overflow	Pipe	Flow	Level
PN	Name	Cap.	(l/s)	(l/s)	Status	Exceeded		
S10.002	S36	0.49		14.4	OK			
S11.000	S37	0.12		6.6	OK			
S11.001	S38	0.13		7.9	OK			
S10.003	S39	0.29		23.8	OK			
S10.004	S40	0.45		26.6	OK			
S1.012	S41	0.26		201.9	OK			
S1.013	S42	0.40		208.0	OK			

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.300 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.350 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)

Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 2, 30, 100
 Climate Change (%) 0, 0, 0

PN	US/MH		Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth	Flooded Volume
	Name	Storm							(m)	(m)	(m ³)
S1.000	S1	15 Winter	30	+0%	30/15 Summer				60.593	0.063	0.000
S1.001	S2	15 Winter	30	+0%	30/15 Summer				60.578	0.118	0.000
S2.000	S3	15 Winter	30	+0%	100/15 Summer				60.524	-0.136	0.000
S1.002	S4	15 Winter	30	+0%	30/15 Summer				60.502	0.112	0.000
S1.003	S5	15 Winter	30	+0%	30/15 Summer				60.399	0.074	0.000
S3.000	S6	15 Winter	30	+0%					62.552	-0.178	0.000
S3.001	S7	15 Winter	30	+0%					61.398	-0.167	0.000
S1.004	S8	15 Winter	30	+0%	100/15 Summer				60.178	-0.086	0.000
S1.005	S9	15 Winter	30	+0%					59.776	-0.138	0.000
S1.006	S10	15 Winter	30	+0%	100/15 Winter				58.778	-0.131	0.000
S4.000	S11	15 Winter	30	+0%					57.963	-0.237	0.000
S4.001	S12	15 Winter	30	+0%	100/15 Summer				57.668	-0.117	0.000
S1.007	S13	15 Winter	30	+0%	30/15 Summer				57.652	0.343	0.000
S1.008	S14	15 Winter	30	+0%	30/15 Summer				57.474	0.239	0.000
S5.000	S15	15 Winter	30	+0%					59.020	-0.295	0.000
S6.000	S16	15 Winter	30	+0%					58.907	-0.248	0.000
S5.001	S17	15 Winter	30	+0%					58.800	-0.205	0.000
S5.002	S18	15 Winter	30	+0%					58.639	-0.201	0.000
S5.003	S19	15 Winter	30	+0%					58.458	-0.197	0.000
S5.004	S20	15 Winter	30	+0%	100/15 Winter				58.279	-0.196	0.000
S7.000	S21	15 Winter	30	+0%					59.380	-0.220	0.000
S7.001	S22	15 Winter	30	+0%					58.990	-0.205	0.000
S7.002	S23	15 Winter	30	+0%					58.651	-0.204	0.000
S8.000	S24	15 Winter	30	+0%	100/15 Summer				58.313	-0.112	0.000
S8.001	S25	15 Winter	30	+0%	100/15 Summer				58.274	-0.081	0.000
S7.003	S26	15 Winter	30	+0%	100/15 Summer				58.250	-0.070	0.000
S5.005	S27	15 Winter	30	+0%	100/15 Summer				58.206	-0.064	0.000
S5.006	S28	15 Winter	30	+0%	100/15 Winter				57.956	-0.149	0.000
S5.007	S29	15 Winter	30	+0%	100/15 Summer				57.492	-0.188	0.000
S1.009	S30	15 Winter	30	+0%	30/15 Summer				57.247	0.582	0.000
S9.000	S31	15 Winter	30	+0%	30/15 Summer				57.077	0.277	0.000
S1.010	S32	15 Winter	30	+0%	30/15 Summer				57.030	0.435	0.000
S1.011	S33	15 Winter	30	+0%	30/15 Summer				56.725	0.205	0.000
S10.000	S34	15 Winter	30	+0%	100/15 Summer				57.095	-0.075	0.000
S10.001	S35	15 Winter	30	+0%	100/15 Summer				57.067	-0.058	0.000

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

PN	US/MH Name	Flow / Cap.	Overflow (1/s)	Pipe Flow (1/s)	Status	Level Exceeded
S1.000	S1	0.25		14.0	SURCHARGED	
S1.001	S2	0.47		26.9	SURCHARGED	
S2.000	S3	0.28		36.2	OK	
S1.002	S4	1.23		69.2	SURCHARGED	
S1.003	S5	1.53		84.0	SURCHARGED	
S3.000	S6	0.10		12.6	OK	
S3.001	S7	0.15		19.2	OK	
S1.004	S8	0.83		105.4	OK	
S1.005	S9	0.56		110.8	OK	
S1.006	S10	0.59		120.3	OK	
S4.000	S11	0.10		15.7	OK	
S4.001	S12	0.14		24.6	OK	
S1.007	S13	1.64		161.2	SURCHARGED	
S1.008	S14	1.87		169.2	SURCHARGED	
S5.000	S15	0.10		22.0	OK	
S6.000	S16	0.25		37.6	OK	
S5.001	S17	0.41		65.4	OK	
S5.002	S18	0.43		72.1	OK	
S5.003	S19	0.46		75.7	OK	
S5.004	S20	0.46		81.8	OK	
S7.000	S21	0.16		25.2	OK	
S7.001	S22	0.22		31.6	OK	
S7.002	S23	0.22		38.1	OK	
S8.000	S24	0.32		28.9	OK	
S8.001	S25	0.42		33.8	OK	
S7.003	S26	0.85		73.0	OK	
S5.005	S27	0.99		158.2	OK	
S5.006	S28	0.67		163.3	OK	
S5.007	S29	0.49		172.7	OK	
S1.009	S30	1.74		347.3	SURCHARGED	
S9.000	S31	0.54		25.0	SURCHARGED	
S1.010	S32	1.98		367.8	SURCHARGED	
S1.011	S33	2.04		374.8	SURCHARGED	
S10.000	S34	0.73		21.8	OK	
S10.001	S35	0.87		24.9	OK	

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

PN	US/MH		Return Period	Climate Change	First (X) SurchARGE	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth	Flooded Volume
	Name	Storm							(m)	(m)	(m ³)
S10.002	S36	15 Winter	30	+0%	100/15 Summer				57.036	-0.049	0.000
S11.000	S37	15 Winter	30	+0%					57.248	-0.152	0.000
S11.001	S38	15 Winter	30	+0%					57.099	-0.146	0.000
S10.003	S39	15 Winter	30	+0%					56.933	-0.102	0.000
S10.004	S40	15 Winter	30	+0%	100/15 Summer				56.569	-0.056	0.000
S1.012	S41	15 Winter	30	+0%					56.199	-0.251	0.000
S1.013	S42	15 Winter	30	+0%					55.273	-0.167	0.000

PN	US/MH Name	Flow / Overflow		Pipe Flow	Level
		Cap.	(l/s)	(l/s)	Status Exceeded
S10.002	S36	0.96		28.1	OK
S11.000	S37	0.23		12.6	OK
S11.001	S38	0.26		15.8	OK
S10.003	S39	0.57		46.9	OK
S10.004	S40	0.90		53.0	OK
S1.012	S41	0.53		410.8	OK
S1.013	S42	0.80		419.4	OK

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.300 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.350 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)

Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 2, 30, 100
 Climate Change (%) 0, 0, 0

PN	US/MH		Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth	Flooded Volume
	Name	Storm							(m)	(m)	(m³)
S1.000	S1	15 Winter	100	+0%	30/15 Summer				60.803	0.273	0.000
S1.001	S2	15 Winter	100	+0%	30/15 Summer				60.783	0.323	0.000
S2.000	S3	15 Winter	100	+0%	100/15 Summer				60.850	0.190	0.000
S1.002	S4	15 Winter	100	+0%	30/15 Summer				60.707	0.317	0.000
S1.003	S5	15 Winter	100	+0%	30/15 Summer				60.552	0.227	0.000
S3.000	S6	15 Winter	100	+0%					62.558	-0.172	0.000
S3.001	S7	15 Winter	100	+0%					61.407	-0.158	0.000
S1.004	S8	15 Winter	100	+0%	100/15 Summer				60.316	0.052	0.000
S1.005	S9	15 Winter	100	+0%					59.804	-0.111	0.000
S1.006	S10	15 Winter	100	+0%	100/15 Winter				58.992	0.082	0.000
S4.000	S11	15 Winter	100	+0%					58.183	-0.017	0.000
S4.001	S12	15 Winter	100	+0%	100/15 Summer				58.171	0.386	0.000
S1.007	S13	15 Winter	100	+0%	30/15 Summer				58.156	0.846	0.000
S1.008	S14	15 Winter	100	+0%	30/15 Summer				57.891	0.656	0.000
S5.000	S15	15 Winter	100	+0%					59.031	-0.284	0.000
S6.000	S16	15 Winter	100	+0%					58.927	-0.228	0.000
S5.001	S17	15 Winter	100	+0%					58.829	-0.176	0.000
S5.002	S18	15 Winter	100	+0%					58.668	-0.172	0.000
S5.003	S19	15 Winter	100	+0%					58.512	-0.143	0.000
S5.004	S20	15 Winter	100	+0%	100/15 Winter				58.482	0.007	0.000
S7.000	S21	15 Winter	100	+0%					59.392	-0.208	0.000
S7.001	S22	15 Winter	100	+0%					59.004	-0.191	0.000
S7.002	S23	15 Winter	100	+0%					58.666	-0.189	0.000
S8.000	S24	15 Winter	100	+0%	100/15 Summer				58.505	0.080	0.000
S8.001	S25	15 Winter	100	+0%	100/15 Summer				58.457	0.102	0.000
S7.003	S26	15 Winter	100	+0%	100/15 Summer				58.411	0.091	0.000
S5.005	S27	15 Winter	100	+0%	100/15 Summer				58.342	0.072	0.000
S5.006	S28	15 Winter	100	+0%	100/15 Winter				58.120	0.015	0.000
S5.007	S29	15 Winter	100	+0%	100/15 Summer				57.877	0.197	0.000
S1.009	S30	15 Winter	100	+0%	30/15 Summer				57.567	0.902	0.000
S9.000	S31	15 Winter	100	+0%	30/15 Summer				57.350	0.550	0.000
S1.010	S32	15 Winter	100	+0%	30/15 Summer				57.269	0.674	0.000
S1.011	S33	15 Winter	100	+0%	30/15 Summer				56.847	0.327	0.000
S10.000	S34	15 Winter	100	+0%	100/15 Summer				57.257	0.087	0.000
S10.001	S35	15 Winter	100	+0%	100/15 Summer				57.185	0.060	0.000

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

PN	US/MH Name	Flow / Cap.	Overflow (1/s)	Pipe Flow (1/s)	Status	Level Exceeded
S1.000	S1	0.31		17.7	SURCHARGED	
S1.001	S2	0.60		34.3	SURCHARGED	
S2.000	S3	0.33		43.5	SURCHARGED	
S1.002	S4	1.55		86.9	SURCHARGED	
S1.003	S5	1.93		106.2	SURCHARGED	
S3.000	S6	0.13		16.3	OK	
S3.001	S7	0.19		24.8	OK	
S1.004	S8	1.06		134.8	SURCHARGED	
S1.005	S9	0.71		141.2	OK	
S1.006	S10	0.73		148.1	SURCHARGED	
S4.000	S11	0.13		20.4	OK	
S4.001	S12	0.16		26.9	SURCHARGED	
S1.007	S13	1.90		186.8	SURCHARGED	
S1.008	S14	2.15		194.5	SURCHARGED	
S5.000	S15	0.13		28.5	OK	
S6.000	S16	0.32		48.7	OK	
S5.001	S17	0.53		84.7	OK	
S5.002	S18	0.55		93.3	OK	
S5.003	S19	0.59		97.9	OK	
S5.004	S20	0.55		98.2	SURCHARGED	
S7.000	S21	0.20		32.6	OK	
S7.001	S22	0.28		40.9	OK	
S7.002	S23	0.29		49.3	OK	
S8.000	S24	0.39		35.7	SURCHARGED	
S8.001	S25	0.54		42.5	SURCHARGED	
S7.003	S26	1.09		93.1	SURCHARGED	
S5.005	S27	1.20		191.4	SURCHARGED	
S5.006	S28	0.78		191.4	SURCHARGED	
S5.007	S29	0.55		195.6	SURCHARGED	
S1.009	S30	2.04		406.9	SURCHARGED	
S9.000	S31	0.60		27.5	SURCHARGED	
S1.010	S32	2.34		434.6	SURCHARGED	
S1.011	S33	2.43		446.5	SURCHARGED	
S10.000	S34	0.92		27.5	SURCHARGED	
S10.001	S35	1.09		31.2	SURCHARGED	

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

PN	US/MH		Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth	Flooded Volume
	Name	Storm							(m)	(m)	(m ³)
S10.002	S36	15 Winter	100	+0%	100/15 Summer				57.108	0.023	0.000
S11.000	S37	15 Winter	100	+0%					57.258	-0.142	0.000
S11.001	S38	15 Winter	100	+0%					57.111	-0.134	0.000
S10.003	S39	15 Winter	100	+0%					56.952	-0.083	0.000
S10.004	S40	15 Winter	100	+0%	100/15 Summer				56.658	0.033	0.000
S1.012	S41	15 Winter	100	+0%					56.233	-0.217	0.000
S1.013	S42	15 Winter	100	+0%					55.327	-0.113	0.000

PN	US/MH Name	Flow / Overflow		Pipe Flow	Status	Level
		Cap.	(l/s)	(l/s)		Exceeded
S10.002	S36	1.18		34.6	SURCHARGED	
S11.000	S37	0.29		16.3	OK	
S11.001	S38	0.34		20.4	OK	
S10.003	S39	0.70		57.1	OK	
S10.004	S40	1.09		64.2	SURCHARGED	
S1.012	S41	0.65		497.5	OK	
S1.013	S42	0.97		509.4	OK	

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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for SW Network

Pipe Sizes ACE-PIPE Manhole Sizes ACE-MH

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.300	Add Flow / Climate Change (%)	0
Ratio R	0.350	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
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)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	20.334	0.070	290.5	0.050	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.001	20.169	0.070	288.1	0.050	0.00	0.0	0.600	o	300	Pipe/Conduit	
S2.000	9.000	0.270	33.3	0.120	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.002	18.812	0.065	289.4	0.030	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.003	18.121	0.060	300.0	0.060	0.00	0.0	0.600	o	300	Pipe/Conduit	
S3.000	15.030	1.165	12.9	0.040	5.00	0.0	0.600	o	225	Pipe/Conduit	
S3.001	16.813	1.300	12.9	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.004	20.664	0.350	59.0	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.005	25.234	1.005	25.1	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.006	41.484	1.600	25.9	0.040	0.00	0.0	0.600	o	300	Pipe/Conduit	
S4.000	11.929	0.415	28.7	0.050	5.00	0.0	0.600	o	300	Pipe/Conduit	
S4.001	14.148	0.475	29.8	0.030	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)
S1.000	50.00	5.37	60.230	0.050	0.0	0.0	0.0	0.92	64.8	6.8
S1.001	50.00	5.73	60.160	0.100	0.0	0.0	0.0	0.92	65.1	13.5
S2.000	50.00	5.05	60.360	0.120	0.0	0.0	0.0	2.73	193.2	16.2
S1.002	50.00	6.08	60.090	0.250	0.0	0.0	0.0	0.92	65.0	33.9
S1.003	50.00	6.41	60.025	0.310	0.0	0.0	0.0	0.90	63.8	42.0
S3.000	50.00	5.07	62.505	0.040	0.0	0.0	0.0	3.66	145.6	5.4
S3.001	50.00	5.14	61.340	0.060	0.0	0.0	0.0	3.66	145.5	8.1
S1.004	50.00	6.58	59.965	0.390	0.0	0.0	0.0	2.05	144.9	52.8
S1.005	50.00	6.71	59.615	0.410	0.0	0.0	0.0	3.15	222.7	55.5
S1.006	50.00	6.93	58.610	0.450	0.0	0.0	0.0	3.10	219.1	60.9
S4.000	50.00	5.07	57.900	0.050	0.0	0.0	0.0	2.94	208.1	6.8
S4.001	50.00	5.15	57.485	0.080	0.0	0.0	0.0	2.89	204.5	10.8

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Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.007	22.203	0.075	296.0	0.090	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.008	25.572	0.070	365.3	0.040	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.000	18.863	0.310	60.8	0.070	5.00	0.0	0.600	o	375	Pipe/Conduit	
S6.000	9.000	0.150	60.0	0.120	5.00	0.0	0.600	o	375	Pipe/Conduit	
S5.001	9.853	0.165	59.7	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.002	10.991	0.185	59.4	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.003	10.833	0.180	60.2	0.010	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.004	12.329	0.205	60.1	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S7.000	12.686	0.405	31.3	0.080	5.00	0.0	0.600	o	300	Pipe/Conduit	
S7.001	10.237	0.340	30.1	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit	
S7.002	16.051	0.535	30.0	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit	
S8.000	24.473	0.070	349.6	0.100	5.00	0.0	0.600	o	375	Pipe/Conduit	
S8.001	11.544	0.035	329.8	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S7.003	18.491	0.050	369.8	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.005	7.876	0.165	47.7	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.006	20.055	0.425	47.2	0.020	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.007	23.908	1.015	23.6	0.040	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.009	28.210	0.070	403.0	0.090	0.00	0.0	0.600	o	525	Pipe/Conduit	
S9.000	21.612	0.205	105.4	0.090	5.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.007	50.00	7.29	56.935	0.620	0.0	0.0	0.0	1.05	115.7	84.0
S1.008	50.00	7.74	56.860	0.660	0.0	0.0	0.0	0.94	104.0	89.4
S5.000	50.00	5.14	58.940	0.070	0.0	0.0	0.0	2.33	256.9	9.5
S6.000	50.00	5.06	58.780	0.120	0.0	0.0	0.0	2.34	258.8	16.2
S5.001	50.00	5.21	58.630	0.210	0.0	0.0	0.0	2.35	259.4	28.4
S5.002	50.00	5.28	58.465	0.230	0.0	0.0	0.0	2.35	260.1	31.1
S5.003	50.00	5.36	58.280	0.240	0.0	0.0	0.0	2.34	258.4	32.5
S5.004	50.00	5.45	58.100	0.260	0.0	0.0	0.0	2.34	258.5	35.2
S7.000	50.00	5.07	59.300	0.080	0.0	0.0	0.0	2.82	199.3	10.8
S7.001	50.00	5.13	58.895	0.100	0.0	0.0	0.0	2.88	203.3	13.5
S7.002	50.00	5.23	58.555	0.120	0.0	0.0	0.0	2.88	203.6	16.2
S8.000	50.00	5.42	58.050	0.100	0.0	0.0	0.0	0.96	106.4	13.5
S8.001	50.00	5.62	57.980	0.120	0.0	0.0	0.0	0.99	109.6	16.2
S7.003	50.00	5.95	57.945	0.260	0.0	0.0	0.0	0.94	103.4	35.2
S5.005	50.00	6.00	57.895	0.540	0.0	0.0	0.0	2.63	290.3	73.1
S5.006	50.00	6.12	57.730	0.560	0.0	0.0	0.0	2.64	292.0	75.8
S5.007	50.00	6.23	57.305	0.600	0.0	0.0	0.0	3.75	413.8	81.2
S1.009	50.00	8.16	56.140	1.350	0.0	0.0	0.0	1.11	240.2	182.8
S9.000	50.00	5.28	56.575	0.090	0.0	0.0	0.0	1.27	50.6	12.2

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Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.010	37.670	0.075	502.3	0.050	0.00	0.0	0.600	o	525	Pipe/Conduit	
S1.011	35.281	0.070	504.0	0.080	0.00	0.0	0.600	o	525	Pipe/Conduit	
S10.000	9.043	0.045	201.0	0.070	5.00	0.0	0.600	o	225	Pipe/Conduit	
S10.001	8.593	0.040	214.8	0.010	0.00	0.0	0.600	o	225	Pipe/Conduit	
S10.002	11.066	0.050	221.3	0.010	0.00	0.0	0.600	o	225	Pipe/Conduit	
S11.000	8.174	0.155	52.7	0.040	5.00	0.0	0.600	o	225	Pipe/Conduit	
S11.001	11.232	0.210	53.5	0.010	0.00	0.0	0.600	o	225	Pipe/Conduit	
S10.003	12.207	0.410	29.8	0.010	0.00	0.0	0.600	o	225	Pipe/Conduit	
S10.004	5.729	0.175	32.7	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.012	24.390	1.010	24.1	0.030	0.00	0.0	0.600	o	525	Pipe/Conduit	
S1.013	11.599	0.470	24.7	0.070	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)
S1.010	49.03	8.80	56.070	1.490	0.0	0.0	0.0	0.99	214.9	197.8
S1.011	47.44	9.39	55.995	1.570	0.0	0.0	0.0	0.99	214.5	201.7
S10.000	50.00	5.16	56.945	0.070	0.0	0.0	0.0	0.92	36.5	9.5
S10.001	50.00	5.33	56.900	0.080	0.0	0.0	0.0	0.89	35.3	10.8
S10.002	50.00	5.54	56.860	0.090	0.0	0.0	0.0	0.87	34.8	12.2
S11.000	50.00	5.08	57.175	0.040	0.0	0.0	0.0	1.81	71.8	5.4
S11.001	50.00	5.18	57.020	0.050	0.0	0.0	0.0	1.79	71.3	6.8
S10.003	50.00	5.62	56.810	0.150	0.0	0.0	0.0	2.41	95.7	20.3
S10.004	50.00	5.66	56.400	0.170	0.0	0.0	0.0	2.29	91.2	23.0
S1.012	47.21	9.48	55.925	1.770	0.0	0.0	0.0	4.57	989.7	226.3
S1.013	47.11	9.52	54.915	1.840	0.0	0.0	0.0	4.52	979.0	234.7

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Manhole Schedules for SW Network

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)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1	61.730	1.500	Open Manhole	1200	S1.000	60.230	300				
S2	61.510	1.350	Open Manhole	1200	S1.001	60.160	300	S1.000	60.160	300	
S3	61.860	1.500	Open Manhole	1200	S2.000	60.360	300				
S4	61.710	1.620	Open Manhole	1200	S1.002	60.090	300	S1.001	60.090	300	
								S2.000	60.090	300	
S5	62.190	2.165	Open Manhole	1200	S1.003	60.025	300	S1.002	60.025	300	
S6	63.930	1.425	Open Manhole	1200	S3.000	62.505	225				
S7	63.370	2.030	Open Manhole	1200	S3.001	61.340	225	S3.000	61.340	225	
S8	62.810	2.845	Open Manhole	1200	S1.004	59.965	300	S1.003	59.965	300	
								S3.001	60.040	225	
S9	61.960	2.345	Open Manhole	1200	S1.005	59.615	300	S1.004	59.615	300	
S10	60.990	2.380	Open Manhole	1200	S1.006	58.610	300	S1.005	58.610	300	
S11	59.400	1.500	Open Manhole	1200	S4.000	57.900	300				
S12	59.390	1.905	Open Manhole	1200	S4.001	57.485	300	S4.000	57.485	300	
S13	59.390	2.455	Open Manhole	1500	S1.007	56.935	375	S1.006	57.010	300	
								S4.001	57.010	300	
S14	58.835	1.975	Open Manhole	1500	S1.008	56.860	375	S1.007	56.860	375	
S15	60.260	1.320	Open Manhole	1500	S5.000	58.940	375				
S16	60.090	1.310	Open Manhole	1500	S6.000	58.780	375				
S17	59.920	1.290	Open Manhole	1500	S5.001	58.630	375	S5.000	58.630	375	
								S6.000	58.630	375	
S18	59.800	1.335	Open Manhole	1500	S5.002	58.465	375	S5.001	58.465	375	
S19	59.620	1.340	Open Manhole	1500	S5.003	58.280	375	S5.002	58.280	375	
S20	59.500	1.400	Open Manhole	1500	S5.004	58.100	375	S5.003	58.100	375	
S21	60.800	1.500	Open Manhole	1200	S7.000	59.300	300				
S22	60.470	1.575	Open Manhole	1200	S7.001	58.895	300	S7.000	58.895	300	
S23	60.210	1.655	Open Manhole	1200	S7.002	58.555	300	S7.001	58.555	300	
S24	59.365	1.315	Open Manhole	1500	S8.000	58.050	375				
S25	59.600	1.620	Open Manhole	1500	S8.001	57.980	375	S8.000	57.980	375	
S26	59.715	1.770	Open Manhole	1500	S7.003	57.945	375	S7.002	58.020	300	
								S8.001	57.945	375	
S27	59.470	1.575	Open Manhole	1500	S5.005	57.895	375	S5.004	57.895	375	
								S7.003	57.895	375	
S28	59.300	1.570	Open Manhole	1500	S5.006	57.730	375	S5.005	57.730	375	
S29	59.000	1.695	Open Manhole	1500	S5.007	57.305	375	S5.006	57.305	375	
S30	58.570	2.430	Open Manhole	1500	S1.009	56.140	525	S1.008	56.790	375	500
								S5.007	56.290	375	
S31	58.070	1.495	Open Manhole	1200	S9.000	56.575	225				
S32	58.280	2.210	Open Manhole	1500	S1.010	56.070	525	S1.009	56.070	525	
								S9.000	56.370	225	
S33	57.980	1.985	Open Manhole	1500	S1.011	55.995	525	S1.010	55.995	525	
S34	58.390	1.445	Open Manhole	1200	S10.000	56.945	225				
S35	58.265	1.365	Open Manhole	1200	S10.001	56.900	225	S10.000	56.900	225	
S36	58.220	1.360	Open Manhole	1200	S10.002	56.860	225	S10.001	56.860	225	
S37	58.600	1.425	Open Manhole	1200	S11.000	57.175	225				
S38	58.420	1.400	Open Manhole	1200	S11.001	57.020	225	S11.000	57.020	225	

Manhole Schedules for SW Network

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)
S39	58.250	1.440	Open Manhole	1200	S10.003	56.810	225	S10.002	56.810	225	
								S11.001	56.810	225	
S40	57.810	1.410	Open Manhole	1200	S10.004	56.400	225	S10.003	56.400	225	
S41	57.600	1.675	Open Manhole	1500	S1.012	55.925	525	S1.011	55.925	525	
								S10.004	56.225	225	
S42	56.800	1.885	Open Manhole	1500	S1.013	54.915	525	S1.012	54.915	525	
SOutfall	56.500	2.055	Open Manhole	1500		OUTFALL		S1.013	54.445	525	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S1	468187.829	112140.612	468187.829	112140.612	Required	
S2	468187.071	112120.292	468187.071	112120.292	Required	
S3	468199.498	112102.070	468199.498	112102.070	Required	
S4	468190.647	112100.443	468190.647	112100.443	Required	
S5	468193.982	112081.929	468193.982	112081.929	Required	
S6	468234.230	112068.190	468234.230	112068.190	Required	
S7	468219.418	112070.744	468219.418	112070.744	Required	
S8	468203.196	112066.325	468203.196	112066.325	Required	
S9	468185.688	112055.350	468185.688	112055.350	Required	
S10	468163.598	112043.152	468163.598	112043.152	Required	
S11	468126.350	112009.436	468126.350	112009.436	Required	
S12	468123.069	112020.904	468123.069	112020.904	Required	
S13	468122.913	112035.052	468122.913	112035.052	Required	
S14	468101.045	112038.896	468101.045	112038.896	Required	

Manhole Schedules for SW Network

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S15	468118.252	112114.349	468118.252	112114.349	Required	
S16	468128.386	112095.565	468128.386	112095.565	Required	
S17	468119.386	112095.520	468119.386	112095.520	Required	
S18	468112.753	112088.235	468112.753	112088.235	Required	
S19	468102.083	112085.594	468102.083	112085.594	Required	
S20	468091.287	112086.476	468091.287	112086.476	Required	
S21	468061.479	112141.960	468061.479	112141.960	Required	
S22	468064.989	112129.769	468064.989	112129.769	Required	
S23	468064.167	112119.565	468064.167	112119.565	Required	
S24	468031.277	112100.101	468031.277	112100.101	Required	
S25	468055.749	112099.887	468055.749	112099.887	Required	
S26	468066.644	112103.706	468066.644	112103.706	Required	
S27	468079.658	112090.570	468079.658	112090.570	Required	
S28	468076.203	112083.491	468076.203	112083.491	Required	
S29	468075.874	112063.439	468075.874	112063.439	Required	
S30	468075.481	112039.534	468075.481	112039.534	Required	
S31	468025.667	112040.395	468025.667	112040.395	Required	
S32	468047.275	112040.018	468047.275	112040.018	Required	
S33	468046.657	112002.354	468046.657	112002.354	Required	

Manhole Schedules for SW Network

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S34	468082.952	111973.302	468082.952	111973.302	Required	
S35	468074.030	111971.827	468074.030	111971.827	Required	
S36	468066.864	111967.085	468066.864	111967.085	Required	
S37	468062.936	111939.154	468062.936	111939.154	Required	
S38	468060.180	111946.849	468060.180	111946.849	Required	
S39	468060.436	111958.078	468060.436	111958.078	Required	
S40	468048.910	111962.097	468048.910	111962.097	Required	
S41	468046.077	111967.077	468046.077	111967.077	Required	
S42	468021.687	111967.077	468021.687	111967.077	Required	
SOutfall	468011.233	111972.102			No Entry	

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PIPELINE SCHEDULES for SW Network

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)
S1.000	o	300	S1	61.730	60.230	1.200	Open Manhole	1200
S1.001	o	300	S2	61.510	60.160	1.050	Open Manhole	1200
S2.000	o	300	S3	61.860	60.360	1.200	Open Manhole	1200
S1.002	o	300	S4	61.710	60.090	1.320	Open Manhole	1200
S1.003	o	300	S5	62.190	60.025	1.865	Open Manhole	1200
S3.000	o	225	S6	63.930	62.505	1.200	Open Manhole	1200
S3.001	o	225	S7	63.370	61.340	1.805	Open Manhole	1200
S1.004	o	300	S8	62.810	59.965	2.545	Open Manhole	1200
S1.005	o	300	S9	61.960	59.615	2.045	Open Manhole	1200
S1.006	o	300	S10	60.990	58.610	2.080	Open Manhole	1200
S4.000	o	300	S11	59.400	57.900	1.200	Open Manhole	1200
S4.001	o	300	S12	59.390	57.485	1.605	Open Manhole	1200
S1.007	o	375	S13	59.390	56.935	2.080	Open Manhole	1500
S1.008	o	375	S14	58.835	56.860	1.600	Open Manhole	1500
S5.000	o	375	S15	60.260	58.940	0.945	Open Manhole	1500
S6.000	o	375	S16	60.090	58.780	0.935	Open Manhole	1500
S5.001	o	375	S17	59.920	58.630	0.915	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)
S1.000	20.334	290.5	S2	61.510	60.160	1.050	Open Manhole	1200
S1.001	20.169	288.1	S4	61.710	60.090	1.320	Open Manhole	1200
S2.000	9.000	33.3	S4	61.710	60.090	1.320	Open Manhole	1200
S1.002	18.812	289.4	S5	62.190	60.025	1.865	Open Manhole	1200
S1.003	18.121	300.0	S8	62.810	59.965	2.545	Open Manhole	1200
S3.000	15.030	12.9	S7	63.370	61.340	1.805	Open Manhole	1200
S3.001	16.813	12.9	S8	62.810	60.040	2.545	Open Manhole	1200
S1.004	20.664	59.0	S9	61.960	59.615	2.045	Open Manhole	1200
S1.005	25.234	25.1	S10	60.990	58.610	2.080	Open Manhole	1200
S1.006	41.484	25.9	S13	59.390	57.010	2.080	Open Manhole	1500
S4.000	11.929	28.7	S12	59.390	57.485	1.605	Open Manhole	1200
S4.001	14.148	29.8	S13	59.390	57.010	2.080	Open Manhole	1500
S1.007	22.203	296.0	S14	58.835	56.860	1.600	Open Manhole	1500
S1.008	25.572	365.3	S30	58.570	56.790	1.405	Open Manhole	1500
S5.000	18.863	60.8	S17	59.920	58.630	0.915	Open Manhole	1500
S6.000	9.000	60.0	S17	59.920	58.630	0.915	Open Manhole	1500
S5.001	9.853	59.7	S18	59.800	58.465	0.960	Open Manhole	1500

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PIPELINE SCHEDULES for SW Network

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)
S5.002	o	375	S18	59.800	58.465	0.960	Open Manhole	1500
S5.003	o	375	S19	59.620	58.280	0.965	Open Manhole	1500
S5.004	o	375	S20	59.500	58.100	1.025	Open Manhole	1500
S7.000	o	300	S21	60.800	59.300	1.200	Open Manhole	1200
S7.001	o	300	S22	60.470	58.895	1.275	Open Manhole	1200
S7.002	o	300	S23	60.210	58.555	1.355	Open Manhole	1200
S8.000	o	375	S24	59.365	58.050	0.940	Open Manhole	1500
S8.001	o	375	S25	59.600	57.980	1.245	Open Manhole	1500
S7.003	o	375	S26	59.715	57.945	1.395	Open Manhole	1500
S5.005	o	375	S27	59.470	57.895	1.200	Open Manhole	1500
S5.006	o	375	S28	59.300	57.730	1.195	Open Manhole	1500
S5.007	o	375	S29	59.000	57.305	1.320	Open Manhole	1500
S1.009	o	525	S30	58.570	56.140	1.905	Open Manhole	1500
S9.000	o	225	S31	58.070	56.575	1.270	Open Manhole	1200
S1.010	o	525	S32	58.280	56.070	1.685	Open Manhole	1500
S1.011	o	525	S33	57.980	55.995	1.460	Open Manhole	1500
S10.000	o	225	S34	58.390	56.945	1.220	Open Manhole	1200
S10.001	o	225	S35	58.265	56.900	1.140	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)
S5.002	10.991	59.4	S19	59.620	58.280	0.965	Open Manhole	1500
S5.003	10.833	60.2	S20	59.500	58.100	1.025	Open Manhole	1500
S5.004	12.329	60.1	S27	59.470	57.895	1.200	Open Manhole	1500
S7.000	12.686	31.3	S22	60.470	58.895	1.275	Open Manhole	1200
S7.001	10.237	30.1	S23	60.210	58.555	1.355	Open Manhole	1200
S7.002	16.051	30.0	S26	59.715	58.020	1.395	Open Manhole	1500
S8.000	24.473	349.6	S25	59.600	57.980	1.245	Open Manhole	1500
S8.001	11.544	329.8	S26	59.715	57.945	1.395	Open Manhole	1500
S7.003	18.491	369.8	S27	59.470	57.895	1.200	Open Manhole	1500
S5.005	7.876	47.7	S28	59.300	57.730	1.195	Open Manhole	1500
S5.006	20.055	47.2	S29	59.000	57.305	1.320	Open Manhole	1500
S5.007	23.908	23.6	S30	58.570	56.290	1.905	Open Manhole	1500
S1.009	28.210	403.0	S32	58.280	56.070	1.685	Open Manhole	1500
S9.000	21.612	105.4	S32	58.280	56.370	1.685	Open Manhole	1500
S1.010	37.670	502.3	S33	57.980	55.995	1.460	Open Manhole	1500
S1.011	35.281	504.0	S41	57.600	55.925	1.150	Open Manhole	1500
S10.000	9.043	201.0	S35	58.265	56.900	1.140	Open Manhole	1200
S10.001	8.593	214.8	S36	58.220	56.860	1.135	Open Manhole	1200

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PIPELINE SCHEDULES for SW Network

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)
S10.002	o	225	S36	58.220	56.860	1.135	Open Manhole	1200
S11.000	o	225	S37	58.600	57.175	1.200	Open Manhole	1200
S11.001	o	225	S38	58.420	57.020	1.175	Open Manhole	1200
S10.003	o	225	S39	58.250	56.810	1.215	Open Manhole	1200
S10.004	o	225	S40	57.810	56.400	1.185	Open Manhole	1200
S1.012	o	525	S41	57.600	55.925	1.150	Open Manhole	1500
S1.013	o	525	S42	56.800	54.915	1.360	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)
S10.002	11.066	221.3	S39	58.250	56.810	1.215	Open Manhole	1200
S11.000	8.174	52.7	S38	58.420	57.020	1.175	Open Manhole	1200
S11.001	11.232	53.5	S39	58.250	56.810	1.215	Open Manhole	1200
S10.003	12.207	29.8	S40	57.810	56.400	1.185	Open Manhole	1200
S10.004	5.729	32.7	S41	57.600	56.225	1.150	Open Manhole	1500
S1.012	24.390	24.1	S42	56.800	54.915	1.360	Open Manhole	1500
S1.013	11.599	24.7	SOutfall	56.500	54.445	1.530	Open Manhole	1500

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Area Summary for SW Network

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.050	0.050	0.050
1.001	-	-	100	0.050	0.050	0.050
2.000	-	-	100	0.120	0.120	0.120
1.002	-	-	100	0.030	0.030	0.030
1.003	-	-	100	0.060	0.060	0.060
3.000	-	-	100	0.040	0.040	0.040
3.001	-	-	100	0.020	0.020	0.020
1.004	-	-	100	0.020	0.020	0.020
1.005	-	-	100	0.020	0.020	0.020
1.006	-	-	100	0.040	0.040	0.040
4.000	-	-	100	0.050	0.050	0.050
4.001	-	-	100	0.030	0.030	0.030
1.007	-	-	100	0.090	0.090	0.090
1.008	-	-	100	0.040	0.040	0.040
5.000	-	-	100	0.070	0.070	0.070
6.000	-	-	100	0.120	0.120	0.120
5.001	-	-	100	0.020	0.020	0.020
5.002	-	-	100	0.020	0.020	0.020
5.003	-	-	100	0.010	0.010	0.010
5.004	-	-	100	0.020	0.020	0.020
7.000	-	-	100	0.080	0.080	0.080
7.001	-	-	100	0.020	0.020	0.020
7.002	-	-	100	0.020	0.020	0.020
8.000	-	-	100	0.100	0.100	0.100
8.001	-	-	100	0.020	0.020	0.020
7.003	-	-	100	0.020	0.020	0.020
5.005	-	-	100	0.020	0.020	0.020
5.006	-	-	100	0.020	0.020	0.020
5.007	-	-	100	0.040	0.040	0.040
1.009	-	-	100	0.090	0.090	0.090
9.000	-	-	100	0.090	0.090	0.090
1.010	-	-	100	0.050	0.050	0.050
1.011	-	-	100	0.080	0.080	0.080
10.000	-	-	100	0.070	0.070	0.070
10.001	-	-	100	0.010	0.010	0.010
10.002	-	-	100	0.010	0.010	0.010
11.000	-	-	100	0.040	0.040	0.040
11.001	-	-	100	0.010	0.010	0.010
10.003	-	-	100	0.010	0.010	0.010
10.004	-	-	100	0.020	0.020	0.020
1.012	-	-	100	0.030	0.030	0.030
1.013	-	-	100	0.070	0.070	0.070
				Total	Total	Total
				1.840	1.840	1.840

Free Flowing Outfall Details for SW Network

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.013	SOutfall	56.500	54.445	54.795	1500	0

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Simulation Criteria for SW Network

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1
Number of Input Hydrographs	0	Number of Offline Controls	0
Number of Online Controls	0	Number of Storage Structures	0
		Number of Time/Area Diagrams	0
		Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	5	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Storm Duration (mins)	30
Ratio R	0.350		

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.300 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.350 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, 240, 360, 480, 960, 1440
 Return Period(s) (years) 100
 Climate Change (%) 30

									Water	Surcharged	Flooded
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)
S1.000	S1 15 Winter		100	+30%	100/15 Summer				61.332	0.802	0.000
S1.001	S2 15 Winter		100	+30%	100/15 Summer				61.310	0.850	0.000
S2.000	S3 15 Winter		100	+30%	100/15 Summer				61.407	0.747	0.000
S1.002	S4 15 Winter		100	+30%	100/15 Summer				61.234	0.844	0.000
S1.003	S5 15 Winter		100	+30%	100/15 Summer				61.055	0.730	0.000
S3.000	S6 15 Winter		100	+30%					62.566	-0.164	0.000
S3.001	S7 15 Winter		100	+30%					61.416	-0.149	0.000
S1.004	S8 15 Winter		100	+30%	100/15 Summer				60.796	0.531	0.000
S1.005	S9 15 Winter		100	+30%	100/15 Summer				60.340	0.425	0.000
S1.006	S10 15 Winter		100	+30%	100/15 Summer				59.759	0.849	0.000
S4.000	S11 15 Winter		100	+30%	100/15 Summer				58.749	0.549	0.000
S4.001	S12 15 Winter		100	+30%	100/15 Summer				58.736	0.951	0.000
S1.007	S13 15 Winter		100	+30%	100/15 Summer				58.714	1.404	0.000
S1.008	S14 15 Winter		100	+30%	100/15 Summer				58.353	1.119	0.000
S5.000	S15 15 Winter		100	+30%					59.315	0.000	0.000
S6.000	S16 15 Winter		100	+30%	100/15 Summer				59.409	0.254	0.000
S5.001	S17 15 Winter		100	+30%	100/15 Summer				59.279	0.274	0.000
S5.002	S18 15 Winter		100	+30%	100/15 Summer				59.125	0.285	0.000
S5.003	S19 15 Winter		100	+30%	100/15 Summer				58.970	0.315	0.000
S5.004	S20 15 Winter		100	+30%	100/15 Summer				58.831	0.356	0.000
S7.000	S21 15 Winter		100	+30%					59.405	-0.195	0.000
S7.001	S22 15 Winter		100	+30%					59.021	-0.174	0.000
S7.002	S23 15 Winter		100	+30%	100/15 Winter				58.930	0.075	0.000
S8.000	S24 15 Winter		100	+30%	100/15 Summer				58.863	0.438	0.000
S8.001	S25 15 Winter		100	+30%	100/15 Summer				58.816	0.461	0.000
S7.003	S26 15 Winter		100	+30%	100/15 Summer				58.774	0.454	0.000
S5.005	S27 15 Winter		100	+30%	100/15 Summer				58.697	0.427	0.000
S5.006	S28 15 Winter		100	+30%	100/15 Summer				58.487	0.382	0.000
S5.007	S29 15 Winter		100	+30%	100/15 Summer				58.237	0.557	0.000
S1.009	S30 15 Winter		100	+30%	100/15 Summer				57.915	1.250	0.000
S9.000	S31 15 Winter		100	+30%	100/15 Summer				57.681	0.881	0.000
S1.010	S32 15 Winter		100	+30%	100/15 Summer				57.555	0.960	0.000
S1.011	S33 15 Winter		100	+30%	100/15 Summer				56.998	0.478	0.000
S10.000	S34 15 Winter		100	+30%	100/15 Summer				57.368	0.198	0.000
S10.001	S35 15 Winter		100	+30%	100/15 Summer				57.296	0.171	0.000

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Third Floor, The Hallmark Building 52-56 Leadenhall Street London, EC3M5JE	Woodcroft Lane, Lovedean Surface Water Network 1	
Date 10/08/2020 10:22 File 192931 Lovedean.MDX	Designed by JH Checked by DP	
Innovyze	Network 2019.1	

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

PN	US/MH Name	Flow / Cap.	Overflow (1/s)	Pipe Flow (1/s)	Status	Level Exceeded
S1.000	S1	0.36		20.3	SURCHARGED	
S1.001	S2	0.69		39.2	FLOOD RISK	
S2.000	S3	0.41		53.9	SURCHARGED	
S1.002	S4	1.81		102.0	SURCHARGED	
S1.003	S5	2.28		125.2	SURCHARGED	
S3.000	S6	0.17		21.2	OK	
S3.001	S7	0.25		32.3	OK	
S1.004	S8	1.27		160.7	SURCHARGED	
S1.005	S9	0.78		154.9	SURCHARGED	
S1.006	S10	0.81		164.4	SURCHARGED	
S4.000	S11	0.15		23.5	SURCHARGED	
S4.001	S12	0.17		28.7	SURCHARGED	
S1.007	S13	2.19		215.9	SURCHARGED	
S1.008	S14	2.51		226.4	SURCHARGED	
S5.000	S15	0.17		37.0	OK	
S6.000	S16	0.42		63.4	SURCHARGED	
S5.001	S17	0.69		109.6	SURCHARGED	
S5.002	S18	0.67		112.9	SURCHARGED	
S5.003	S19	0.63		103.8	SURCHARGED	
S5.004	S20	0.58		102.4	SURCHARGED	
S7.000	S21	0.27		42.4	OK	
S7.001	S22	0.36		53.2	OK	
S7.002	S23	0.37		64.1	SURCHARGED	
S8.000	S24	0.46		42.2	SURCHARGED	
S8.001	S25	0.63		49.7	SURCHARGED	
S7.003	S26	1.24		106.1	SURCHARGED	
S5.005	S27	1.31		207.6	SURCHARGED	
S5.006	S28	0.82		199.7	SURCHARGED	
S5.007	S29	0.58		206.5	SURCHARGED	
S1.009	S30	2.28		453.3	SURCHARGED	
S9.000	S31	0.82		37.7	SURCHARGED	
S1.010	S32	2.69		499.4	SURCHARGED	
S1.011	S33	2.80		514.9	SURCHARGED	
S10.000	S34	1.20		35.8	SURCHARGED	
S10.001	S35	1.39		40.0	SURCHARGED	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)
S10.002	S36	15 Winter	100	+30%	100/15 Summer				57.217	0.132	0.000
S11.000	S37	15 Winter	100	+30%					57.272	-0.128	0.000
S11.001	S38	15 Winter	100	+30%					57.144	-0.101	0.000
S10.003	S39	15 Winter	100	+30%	100/15 Summer				57.107	0.072	0.000
S10.004	S40	15 Winter	100	+30%	100/15 Summer				56.783	0.158	0.000
S1.012	S41	15 Winter	100	+30%					56.274	-0.176	0.000
S1.013	S42	15 Winter	100	+30%	100/15 Summer				55.591	0.151	0.000

		US/MH		Pipe		Level	
PN	Name	Flow / Cap.	Overflow (l/s)	Flow (l/s)	Status	Exceeded	
S10.002	S36	1.48		43.7	SURCHARGED		
S11.000	S37	0.38		21.1	OK		
S11.001	S38	0.44		26.5	OK		
S10.003	S39	0.89		72.9	SURCHARGED		
S10.004	S40	1.38		81.4	SURCHARGED		
S1.012	S41	0.78		598.4	OK		
S1.013	S42	1.17		613.0	SURCHARGED		

FOUL SEWERAGE DESIGN												
Network Design Table for FW Network 1												
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	
F1-1.000	14.496	0.330	43.9	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-1.001	12.247	0.250	49.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-1.002	12.606	0.380	33.2	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-2.000	19.574	0.245	79.9	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-2.001	10.781	0.075	143.7	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-1.003	8.360	0.055	152.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-1.004	12.789	0.085	150.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-3.000	15.659	0.200	78.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-4.000	11.164	0.145	77.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-3.001	7.853	0.055	142.8	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-3.002	9.311	0.065	143.2	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-3.003	11.247	0.075	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-3.004	11.721	0.080	146.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-1.005	9.836	0.065	151.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-1.006	15.882	0.105	151.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-1.007	28.860	0.195	148.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-5.000	21.343	0.145	147.2	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1-5.001	27.652	0.185	149.5	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	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)		
F1-1.000	58.010	0.000	0.0	0	0.0	0	0.00	1.32	23.4	0.0		
F1-1.001	57.680	0.000	0.0	0	0.0	0	0.00	1.25	22.2	0.0		
F1-1.002	57.430	0.000	0.0	0	0.0	0	0.00	1.52	26.9	0.0		
F1-2.000	57.370	0.000	0.0	0	0.0	0	0.00	0.98	17.3	0.0		
F1-2.001	57.125	0.000	0.0	0	0.0	0	0.00	0.73	12.9	0.0		
F1-1.003	57.050	0.000	0.0	0	0.0	0	0.00	0.71	12.5	0.0		
F1-1.004	56.995	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0		
F1-3.000	57.385	0.000	0.0	0	0.0	0	0.00	0.99	17.5	0.0		
F1-4.000	57.330	0.000	0.0	0	0.0	0	0.00	1.00	17.7	0.0		
F1-3.001	57.185	0.000	0.0	0	0.0	0	0.00	0.73	12.9	0.0		
F1-3.002	57.130	0.000	0.0	0	0.0	0	0.00	0.73	12.9	0.0		
F1-3.003	57.065	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0		
F1-3.004	56.990	0.000	0.0	0	0.0	0	0.00	0.72	12.8	0.0		
F1-1.005	56.910	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0		
F1-1.006	56.845	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0		
F1-1.007	56.740	0.000	0.0	0	0.0	0	0.00	0.72	12.7	0.0		
F1-5.000	56.875	0.000	0.0	0	0.0	0	0.00	0.72	12.7	0.0		
F1-5.001	56.730	0.000	0.0	0	0.0	0	0.00	0.72	12.6	0.0		

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Kings Hill	Foul Water	
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XP Solutions	Network 2020.1	

FOUL SEWERAGE DESIGN

Network Design Table for FW Network 1

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
F1-1.008	26.905	0.180	149.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-1.009	16.688	0.115	145.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-6.000	22.262	0.280	79.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-6.001	22.529	0.165	136.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-7.000	12.532	0.175	71.6	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-6.002	18.337	0.125	146.7	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-6.003	19.246	0.130	148.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-8.000	14.868	0.595	25.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-8.001	18.201	0.755	24.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-6.004	19.992	0.660	30.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-6.005	25.119	0.835	30.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-6.006	43.233	1.435	30.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-1.010	13.513	0.090	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-1.011	12.433	0.085	146.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1-1.012	12.516	0.075	166.9	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	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F1-1.008	56.545	0.000	0.0	0	0.0	0	0.00	0.72	12.6	0.0
F1-1.009	56.365	0.000	0.0	0	0.0	0	0.00	0.73	12.8	0.0
F1-6.000	59.880	0.000	0.0	0	0.0	0	0.00	0.98	17.4	0.0
F1-6.001	59.600	0.000	0.0	0	0.0	0	0.00	0.75	13.2	0.0
F1-7.000	59.610	0.000	0.0	0	0.0	0	0.00	1.04	18.3	0.0
F1-6.002	59.435	0.000	0.0	0	0.0	0	0.00	0.72	12.8	0.0
F1-6.003	59.310	0.000	0.0	0	0.0	0	0.00	0.72	12.7	0.0
F1-8.000	60.530	0.000	0.0	0	0.0	0	0.00	1.76	31.1	0.0
F1-8.001	59.935	0.000	0.0	0	0.0	0	0.00	1.79	31.6	0.0
F1-6.004	59.180	0.000	0.0	0	0.0	0	0.00	1.60	28.2	0.0
F1-6.005	58.520	0.000	0.0	0	0.0	0	0.00	1.60	28.3	0.0
F1-6.006	57.685	0.000	0.0	0	0.0	0	0.00	1.60	28.3	0.0
F1-1.010	56.250	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
F1-1.011	56.160	0.000	0.0	0	0.0	0	0.00	0.72	12.8	0.0
F1-1.012	56.075	0.000	0.0	0	0.0	0	0.00	0.68	12.0	0.0



Manhole Schedules for FW Network 1

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)
F1-1	60.790	2.780	Open Manhole	1200	F1-1.000	58.010	150				
F1-2	60.480	2.800	Open Manhole	1200	F1-1.001	57.680	150	F1-1.000	57.680	150	
F1-3	60.180	2.750	Open Manhole	1200	F1-1.002	57.430	150	F1-1.001	57.430	150	
F1-4	59.440	2.070	Open Manhole	1200	F1-2.000	57.370	150				
F1-5	59.650	2.525	Open Manhole	1200	F1-2.001	57.125	150	F1-2.000	57.125	150	
F1-6	59.810	2.760	Open Manhole	1200	F1-1.003	57.050	150	F1-1.002	57.050	150	
								F1-2.001	57.050	150	
F1-7	59.620	2.625	Open Manhole	1200	F1-1.004	56.995	150	F1-1.003	56.995	150	
F1-8	60.240	2.855	Open Manhole	1200	F1-3.000	57.385	150				
F1-9	60.090	2.760	Open Manhole	1200	F1-4.000	57.330	150				
F1-10	59.990	2.805	Open Manhole	1200	F1-3.001	57.185	150	F1-3.000	57.185	150	
								F1-4.000	57.185	150	
F1-11	59.840	2.710	Open Manhole	1200	F1-3.002	57.130	150	F1-3.001	57.130	150	
F1-12	59.680	2.615	Open Manhole	1200	F1-3.003	57.065	150	F1-3.002	57.065	150	
F1-13	59.530	2.540	Open Manhole	1200	F1-3.004	56.990	150	F1-3.003	56.990	150	
F1-14	59.510	2.600	Open Manhole	1200	F1-1.005	56.910	150	F1-1.004	56.910	150	
								F1-3.004	56.910	150	
F1-15	59.340	2.495	Open Manhole	1200	F1-1.006	56.845	150	F1-1.005	56.845	150	
F1-16	59.060	2.320	Open Manhole	1200	F1-1.007	56.740	150	F1-1.006	56.740	150	
F1-17	58.100	1.225	Open Manhole	1200	F1-5.000	56.875	150				
F1-18	58.320	1.590	Open Manhole	1200	F1-5.001	56.730	150	F1-5.000	56.730	150	
F1-19	58.600	2.055	Open Manhole	1200	F1-1.008	56.545	150	F1-1.007	56.545	150	
								F1-5.001	56.545	150	
F1-20	58.880	2.515	Open Manhole	1200	F1-1.009	56.365	150	F1-1.008	56.365	150	
F1-21	61.780	1.900	Open Manhole	1200	F1-6.000	59.880	150				
F1-22	61.520	1.920	Open Manhole	1200	F1-6.001	59.600	150	F1-6.000	59.600	150	
F1-23	61.900	2.290	Open Manhole	1200	F1-7.000	59.610	150				
F1-24	61.780	2.345	Open Manhole	1200	F1-6.002	59.435	150	F1-6.001	59.435	150	
								F1-7.000	59.435	150	
F1-25	62.200	2.890	Open Manhole	1200	F1-6.003	59.310	150	F1-6.002	59.310	150	
F1-26	63.950	3.420	Open Manhole	1200	F1-8.000	60.530	150				
F1-27	63.370	3.435	Open Manhole	1200	F1-8.001	59.935	150	F1-8.000	59.935	150	
F1-28	62.740	3.560	Open Manhole	1200	F1-6.004	59.180	150	F1-6.003	59.180	150	
								F1-8.001	59.180	150	
F1-29	61.890	3.370	Open Manhole	1200	F1-6.005	58.520	150	F1-6.004	58.520	150	
F1-30	60.920	3.235	Open Manhole	1200	F1-6.006	57.685	150	F1-6.005	57.685	150	
F1-31	59.140	2.890	Open Manhole	1200	F1-1.010	56.250	150	F1-1.009	56.250	150	
								F1-6.006	56.250	150	
F1-32	59.510	3.350	Open Manhole	1200	F1-1.011	56.160	150	F1-1.010	56.160	150	
F1-33	59.500	3.425	Open Manhole	1200	F1-1.012	56.075	150	F1-1.011	56.075	150	
F1-Outfall 1	58.531	2.531	Open Manhole	1200		OUTFALL		F1-1.012	56.000	150	

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Manhole Schedules for FW Network 1

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
F1-1	468062.029	112144.795	468062.029	112144.795	Required	
F1-2	468066.562	112131.026	468066.562	112131.026	Required	
F1-3	468065.770	112118.805	468065.770	112118.805	Required	
F1-4	468038.365	112101.553	468038.365	112101.553	Required	
F1-5	468057.936	112101.866	468057.936	112101.866	Required	
F1-6	468067.739	112106.354	468067.739	112106.354	Required	
F1-7	468072.766	112099.674	468072.766	112099.674	Required	
F1-8	468116.862	112112.977	468116.862	112112.977	Required	
F1-9	468128.761	112097.294	468128.761	112097.294	Required	
F1-10	468117.597	112097.336	468117.597	112097.336	Required	
F1-11	468113.433	112090.678	468113.433	112090.678	Required	
F1-12	468104.689	112087.479	468104.689	112087.479	Required	
F1-13	468093.443	112087.548	468093.443	112087.548	Required	
F1-14	468082.283	112091.130	468082.283	112091.130	Required	
F1-15	468077.780	112082.385	468077.780	112082.385	Required	
F1-16	468077.357	112066.509	468077.357	112066.509	Required	
F1-17	468027.925	112038.495	468027.925	112038.495	Required	
F1-18	468049.265	112038.128	468049.265	112038.128	Required	
F1-19	468076.913	112037.652	468076.913	112037.652	Required	

Manhole Schedules for FW Network 1

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
F1-20	468103.799	112036.637	468103.799	112036.637	Required	
F1-21	468186.076	112142.386	468186.076	112142.386	Required	
F1-22	468184.627	112120.172	468184.627	112120.172	Required	
F1-23	468201.032	112100.676	468201.032	112100.676	Required	
F1-24	468188.783	112098.029	468188.783	112098.029	Required	
F1-25	468192.097	112079.994	468192.097	112079.994	Required	
F1-26	468233.516	112066.054	468233.516	112066.054	Required	
F1-27	468218.857	112068.539	468218.857	112068.539	Required	
F1-28	468201.462	112063.180	468201.462	112063.180	Required	
F1-29	468184.540	112052.535	468184.540	112052.535	Required	
F1-30	468162.469	112040.544	468162.469	112040.544	Required	
F1-31	468119.980	112032.557	468119.980	112032.557	Required	
F1-32	468121.580	112019.139	468121.580	112019.139	Required	
F1-33	468124.901	112007.158	468124.901	112007.158	Required	
F1-Outfall 1	468131.809	111996.721			No Entry	

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PIPELINE SCHEDULES for FW Network 1

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)
F1-1.000	o	150	F1-1	60.790	58.010	2.630	Open Manhole	1200
F1-1.001	o	150	F1-2	60.480	57.680	2.650	Open Manhole	1200
F1-1.002	o	150	F1-3	60.180	57.430	2.600	Open Manhole	1200
F1-2.000	o	150	F1-4	59.440	57.370	1.920	Open Manhole	1200
F1-2.001	o	150	F1-5	59.650	57.125	2.375	Open Manhole	1200
F1-1.003	o	150	F1-6	59.810	57.050	2.610	Open Manhole	1200
F1-1.004	o	150	F1-7	59.620	56.995	2.475	Open Manhole	1200
F1-3.000	o	150	F1-8	60.240	57.385	2.705	Open Manhole	1200
F1-4.000	o	150	F1-9	60.090	57.330	2.610	Open Manhole	1200
F1-3.001	o	150	F1-10	59.990	57.185	2.655	Open Manhole	1200
F1-3.002	o	150	F1-11	59.840	57.130	2.560	Open Manhole	1200
F1-3.003	o	150	F1-12	59.680	57.065	2.465	Open Manhole	1200
F1-3.004	o	150	F1-13	59.530	56.990	2.390	Open Manhole	1200
F1-1.005	o	150	F1-14	59.510	56.910	2.450	Open Manhole	1200
F1-1.006	o	150	F1-15	59.340	56.845	2.345	Open Manhole	1200
F1-1.007	o	150	F1-16	59.060	56.740	2.170	Open Manhole	1200
F1-5.000	o	150	F1-17	58.100	56.875	1.075	Open Manhole	1200
F1-5.001	o	150	F1-18	58.320	56.730	1.440	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)
F1-1.000	14.496	43.9	F1-2	60.480	57.680	2.650	Open Manhole	1200
F1-1.001	12.247	49.0	F1-3	60.180	57.430	2.600	Open Manhole	1200
F1-1.002	12.606	33.2	F1-6	59.810	57.050	2.610	Open Manhole	1200
F1-2.000	19.574	79.9	F1-5	59.650	57.125	2.375	Open Manhole	1200
F1-2.001	10.781	143.7	F1-6	59.810	57.050	2.610	Open Manhole	1200
F1-1.003	8.360	152.0	F1-7	59.620	56.995	2.475	Open Manhole	1200
F1-1.004	12.789	150.5	F1-14	59.510	56.910	2.450	Open Manhole	1200
F1-3.000	15.659	78.3	F1-10	59.990	57.185	2.655	Open Manhole	1200
F1-4.000	11.164	77.0	F1-10	59.990	57.185	2.655	Open Manhole	1200
F1-3.001	7.853	142.8	F1-11	59.840	57.130	2.560	Open Manhole	1200
F1-3.002	9.311	143.2	F1-12	59.680	57.065	2.465	Open Manhole	1200
F1-3.003	11.247	150.0	F1-13	59.530	56.990	2.390	Open Manhole	1200
F1-3.004	11.721	146.5	F1-14	59.510	56.910	2.450	Open Manhole	1200
F1-1.005	9.836	151.3	F1-15	59.340	56.845	2.345	Open Manhole	1200
F1-1.006	15.882	151.3	F1-16	59.060	56.740	2.170	Open Manhole	1200
F1-1.007	28.860	148.0	F1-19	58.600	56.545	1.905	Open Manhole	1200
F1-5.000	21.343	147.2	F1-18	58.320	56.730	1.440	Open Manhole	1200
F1-5.001	27.652	149.5	F1-19	58.600	56.545	1.905	Open Manhole	1200

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PIPELINE SCHEDULES for FW Network 1

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)
F1-1.008	o	150	F1-19	58.600	56.545	1.905	Open Manhole	1200
F1-1.009	o	150	F1-20	58.880	56.365	2.365	Open Manhole	1200
F1-6.000	o	150	F1-21	61.780	59.880	1.750	Open Manhole	1200
F1-6.001	o	150	F1-22	61.520	59.600	1.770	Open Manhole	1200
F1-7.000	o	150	F1-23	61.900	59.610	2.140	Open Manhole	1200
F1-6.002	o	150	F1-24	61.780	59.435	2.195	Open Manhole	1200
F1-6.003	o	150	F1-25	62.200	59.310	2.740	Open Manhole	1200
F1-8.000	o	150	F1-26	63.950	60.530	3.270	Open Manhole	1200
F1-8.001	o	150	F1-27	63.370	59.935	3.285	Open Manhole	1200
F1-6.004	o	150	F1-28	62.740	59.180	3.410	Open Manhole	1200
F1-6.005	o	150	F1-29	61.890	58.520	3.220	Open Manhole	1200
F1-6.006	o	150	F1-30	60.920	57.685	3.085	Open Manhole	1200
F1-1.010	o	150	F1-31	59.140	56.250	2.740	Open Manhole	1200
F1-1.011	o	150	F1-32	59.510	56.160	3.200	Open Manhole	1200
F1-1.012	o	150	F1-33	59.500	56.075	3.275	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)
F1-1.008	26.905	149.5	F1-20	58.880	56.365	2.365	Open Manhole	1200
F1-1.009	16.688	145.1	F1-31	59.140	56.250	2.740	Open Manhole	1200
F1-6.000	22.262	79.5	F1-22	61.520	59.600	1.770	Open Manhole	1200
F1-6.001	22.529	136.5	F1-24	61.780	59.435	2.195	Open Manhole	1200
F1-7.000	12.532	71.6	F1-24	61.780	59.435	2.195	Open Manhole	1200
F1-6.002	18.337	146.7	F1-25	62.200	59.310	2.740	Open Manhole	1200
F1-6.003	19.246	148.0	F1-28	62.740	59.180	3.410	Open Manhole	1200
F1-8.000	14.868	25.0	F1-27	63.370	59.935	3.285	Open Manhole	1200
F1-8.001	18.201	24.1	F1-28	62.740	59.180	3.410	Open Manhole	1200
F1-6.004	19.992	30.3	F1-29	61.890	58.520	3.220	Open Manhole	1200
F1-6.005	25.119	30.1	F1-30	60.920	57.685	3.085	Open Manhole	1200
F1-6.006	43.233	30.1	F1-31	59.140	56.250	2.740	Open Manhole	1200
F1-1.010	13.513	150.0	F1-32	59.510	56.160	3.200	Open Manhole	1200
F1-1.011	12.433	146.3	F1-33	59.500	56.075	3.275	Open Manhole	1200
F1-1.012	12.516	166.9	F1-Outfall 1	58.531	56.000	2.381	Open Manhole	1200

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Area Summary for FW Network 1

Pipe Number	Gross Area (ha)	Pipe Total (ha)
1.000	0.000	0.000
1.001	0.000	0.000
1.002	0.000	0.000
2.000	0.000	0.000
2.001	0.000	0.000
1.003	0.000	0.000
1.004	0.000	0.000
3.000	0.000	0.000
4.000	0.000	0.000
3.001	0.000	0.000
3.002	0.000	0.000
3.003	0.000	0.000
3.004	0.000	0.000
1.005	0.000	0.000
1.006	0.000	0.000
1.007	0.000	0.000
5.000	0.000	0.000
5.001	0.000	0.000
1.008	0.000	0.000
1.009	0.000	0.000
6.000	0.000	0.000
6.001	0.000	0.000
7.000	0.000	0.000
6.002	0.000	0.000
6.003	0.000	0.000
8.000	0.000	0.000
8.001	0.000	0.000
6.004	0.000	0.000
6.005	0.000	0.000
6.006	0.000	0.000
1.010	0.000	0.000
1.011	0.000	0.000
1.012	0.000	0.000
	Total	Total
	0.000	0.000

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Network Classifications for FW Network 1

PN	USMH Name	Pipe Dia (mm)	Min Cover Depth (m)	Max Cover Depth (m)	Pipe Type	MH Dia (mm)	MH Width (mm)	MH Ring Depth (m)	MH Type
F1-1.000	F1-1	150	2.252	2.650	Unclassified	1200	0	2.630	Unclassified
F1-1.001	F1-2	150	1.809	2.650	Unclassified	1200	0	2.650	Unclassified
F1-1.002	F1-3	150	1.697	2.610	Unclassified	1200	0	2.600	Unclassified
F1-2.000	F1-4	150	1.721	2.375	Unclassified	1200	0	1.920	Unclassified
F1-2.001	F1-5	150	1.751	2.610	Unclassified	1200	0	2.375	Unclassified
F1-1.003	F1-6	150	1.816	2.610	Unclassified	1200	0	2.610	Unclassified
F1-1.004	F1-7	150	1.932	2.475	Unclassified	1200	0	2.475	Unclassified
F1-3.000	F1-8	150	2.654	2.705	Unclassified	1200	0	2.705	Unclassified
F1-4.000	F1-9	150	2.388	2.655	Unclassified	1200	0	2.610	Unclassified
F1-3.001	F1-10	150	2.549	2.655	Unclassified	1200	0	2.655	Unclassified
F1-3.002	F1-11	150	2.447	2.560	Unclassified	1200	0	2.560	Unclassified
F1-3.003	F1-12	150	2.322	2.465	Unclassified	1200	0	2.465	Unclassified
F1-3.004	F1-13	150	2.199	2.450	Unclassified	1200	0	2.390	Unclassified
F1-1.005	F1-14	150	2.149	2.450	Unclassified	1200	0	2.450	Unclassified
F1-1.006	F1-15	150	2.170	2.514	Unclassified	1200	0	2.345	Unclassified
F1-1.007	F1-16	150	1.905	2.562	Unclassified	1200	0	2.170	Unclassified
F1-5.000	F1-17	150	1.075	1.957	Unclassified	1200	0	1.075	Unclassified
F1-5.001	F1-18	150	1.440	2.478	Unclassified	1200	0	1.440	Unclassified
F1-1.008	F1-19	150	1.905	2.460	Unclassified	1200	0	1.905	Unclassified
F1-1.009	F1-20	150	2.365	2.740	Unclassified	1200	0	2.365	Unclassified
F1-6.000	F1-21	150	1.750	1.854	Unclassified	1200	0	1.750	Unclassified
F1-6.001	F1-22	150	1.746	2.195	Unclassified	1200	0	1.770	Unclassified
F1-7.000	F1-23	150	2.079	2.202	Unclassified	1200	0	2.140	Unclassified
F1-6.002	F1-24	150	2.195	2.740	Unclassified	1200	0	2.195	Unclassified
F1-6.003	F1-25	150	2.740	3.410	Unclassified	1200	0	2.740	Unclassified
F1-8.000	F1-26	150	3.270	3.710	Unclassified	1200	0	3.270	Unclassified
F1-8.001	F1-27	150	3.285	3.716	Unclassified	1200	0	3.285	Unclassified
F1-6.004	F1-28	150	3.220	3.548	Unclassified	1200	0	3.410	Unclassified
F1-6.005	F1-29	150	3.016	3.220	Unclassified	1200	0	3.220	Unclassified
F1-6.006	F1-30	150	2.527	3.085	Unclassified	1200	0	3.085	Unclassified
F1-1.010	F1-31	150	2.665	3.200	Unclassified	1200	0	2.740	Unclassified
F1-1.011	F1-32	150	2.706	3.275	Unclassified	1200	0	3.200	Unclassified
F1-1.012	F1-33	150	1.995	3.275	Unclassified	1200	0	3.275	Unclassified

Free Flowing Outfall Details for FW Network 1

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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F1-1.012	F1-Outfall 1	58.531	56.000	56.990	1200	0
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Simulation Criteria for FW Network 1

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1
Number of Input Hydrographs	0	Number of Offline Controls	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
		Number of Storage Structures	0
		Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	M5-60 (mm)	19.300
Return Period (years)	5	Ratio R	0.350
Region England and Wales		Profile Type	Summer

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Synthetic Rainfall Details

Cv (Summer) 0.750 Storm Duration (mins) 30
Cv (Winter) 0.840