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MICRODRAINAGE SURFACE WATER DRAINAGE CALCULATIONS

For

**Application for approval of reserved matters relating to Phases 2 and 3 being
appearance, landscaping layout and scale pursuant to planning permission
21/00434/HYA for the erection of 48 dwellings and associated works**

At

POUND FIELDS LONDON ROAD, HITCHIN

Project: E22-032
Date: December 2024
Author: Nigel Jones
Status: Planning
Revision: Fifth Issue

APPENDIX

MICRODRAINAGE NETWORK CALCULATIONS –

NETWORK DETAILS

2 YEAR RETURN PERIOD

10 YEAR RETURN PERIOD

30 YEAR RETURN PERIOD

100 YEAR RETURN PERIOD + 40% CLIMATE CHANGE

PROPOSED DRAINED AREAS & PIPE REFERENCE PLAN

MICRODRAINAGE NETWORK CALCULATIONS

NETWORK DETAILS

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model		
Return Period (years)		100
FEH Rainfall Version		2013
Site Location	GB 519261 227584 TL 19261	27584
Data Type		Point
Maximum Rainfall (mm/hr)		50
Maximum Time of Concentration (mins)		30
Foul Sewage (l/s/ha)		0.000
Volumetric Runoff Coeff.		0.750
PIMP (%)		100
Add Flow / Climate Change (%)		0
Minimum Backdrop Height (m)		0.200
Maximum Backdrop Height (m)		1.500
Min Design Depth for Optimisation (m)		1.200
Min Vel for Auto Design only (m/s)		1.00
Min Slope for Optimisation (1:X)		500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.000	4-8	0.173	8-12	1.128	12-16	0.258	16-20	0.082	20-24	0.058	24-28	0.011

Total Area Contributing (ha) = 1.709

Total Pipe Volume (m³) = 652.899

Network Design Table for Storm

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	60.000	0.370	162.2	0.080	10.00	0.0		0.030	→ ↓ →		Porous Car Park	
1.001	0.500	0.005	100.0	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	
1.002	16.000	0.500	32.0	0.016	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
1.003	0.500	0.005	100.0	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	
1.004	20.700	0.125	165.6	0.045	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
1.005	0.500	0.005	100.0	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	12.20	77.250	0.080	0.0	0.0	0.0	0.45	349.7	10.8
1.001	50.00	12.21	76.880	0.080	0.0	0.0	0.0	1.00	17.8	10.8
1.002	50.00	12.45	76.380	0.096	0.0	0.0	0.0	1.13	1152.3	13.0
1.003	50.00	12.46	75.880	0.096	0.0	0.0	0.0	1.00	17.8	13.0
1.004	50.00	13.19	75.435	0.141	0.0	0.0	0.0	0.47	436.5	19.1
1.005	50.00	13.20	75.310	0.141	0.0	0.0	0.0	1.00	17.8«	19.1

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
2.000	46.444	0.200	232.2	0.187	15.00	0.0		0.030	→ ↓ →		Porous Car Park	
1.006	13.800	0.200	69.0	0.024	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
1.007	16.100	0.200	80.5	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
1.008	11.800	0.350	33.7	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
3.000	20.300	0.475	42.7	0.053	5.00	0.0		0.030	→ ↓ →		Porous Car Park	
3.001	17.620	0.050	352.4	0.026	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
3.002	32.223	1.275	25.3	0.112	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
1.009	40.610	1.100	36.9	0.044	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
1.010	9.340	0.550	17.0	0.010	0.00	0.0	0.600		o	225	Pipe/Conduit	
4.000	22.800	0.135	168.9	0.034	5.00	0.0	0.600		o	225	Pipe/Conduit	
4.001	7.860	0.045	174.7	0.096	0.00	0.0	0.600		o	225	Pipe/Conduit	
5.000	20.159	0.120	168.0	0.045	5.00	0.0	0.600		o	225	Pipe/Conduit	
6.000	8.300	0.140	59.3	0.043	5.00	0.0	0.600		o	150	Pipe/Conduit	
6.001	32.010	0.190	168.5	0.121	0.00	0.0	0.600		o	300	Pipe/Conduit	
5.001	19.894	0.115	173.0	0.045	0.00	0.0	0.600		o	300	Pipe/Conduit	
5.002	10.556	0.060	175.9	0.022	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.011	37.090	1.850	20.0	0.025	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
1.012	12.330	0.250	49.3	0.051	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
7.000	27.478	1.000	27.5	0.041	5.00	0.0		0.030	→ ↓ →		Porous Car Park	

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)
2.000	50.00	17.06	75.350	0.187	0.0	0.0	0.0	0.38	320.1	25.3
1.006	50.00	17.38	75.150	0.352	0.0	0.0	0.0	0.72	666.7	47.7
1.007	50.00	17.57	74.950	0.352	0.0	0.0	0.0	1.46	58.0	47.7
1.008	50.00	17.65	74.750	0.352	0.0	0.0	0.0	2.26	89.9	47.7
3.000	50.00	5.36	75.900	0.053	0.0	0.0	0.0	0.94	890.0	7.2
3.001	50.00	6.25	75.425	0.079	0.0	0.0	0.0	0.33	323.0	10.7
3.002	50.00	6.67	75.375	0.191	0.0	0.0	0.0	1.29	1347.1	25.9
1.009	50.00	18.26	74.100	0.587	0.0	0.0	0.0	1.12	1265.6	79.5
1.010	50.00	18.31	73.000	0.597	0.0	0.0	0.0	3.19	126.9	80.8
4.000	50.00	5.38	72.630	0.034	0.0	0.0	0.0	1.00	39.9	4.6
4.001	50.00	5.51	72.495	0.130	0.0	0.0	0.0	0.99	39.2	17.6
5.000	50.00	5.33	72.745	0.045	0.0	0.0	0.0	1.01	40.0	6.1
6.000	50.00	5.11	73.030	0.043	0.0	0.0	0.0	1.31	23.1	5.8
6.001	50.00	5.55	72.815	0.164	0.0	0.0	0.0	1.21	85.4	22.2
5.001	50.00	5.83	72.625	0.254	0.0	0.0	0.0	1.19	84.3	34.4
5.002	50.00	5.97	72.510	0.276	0.0	0.0	0.0	1.18	83.6	37.4
1.011	50.00	18.73	72.450	1.028	0.0	0.0	0.0	1.46	1536.5	139.2
1.012	50.00	18.98	70.600	1.079	0.0	0.0	0.0	0.84	746.2	146.1
7.000	50.00	5.37	75.200	0.041	0.0	0.0	0.0	1.23	1267.9	5.6

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
7.001	42.765	2.300	18.6	0.066	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
7.002	10.526	0.450	23.4	0.063	0.00	0.0	0.600		o	225	Pipe/Conduit	
7.003	45.760	0.450	101.7	0.037	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
7.004	9.100	0.100	91.0	0.045	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
7.005	28.785	0.375	76.8	0.022	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
7.006	29.266	0.175	167.2	0.047	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
8.000	19.770	1.000	19.8	0.025	5.00	0.0		0.030	→ ↓ →		Porous Car Park	
8.001	15.950	0.750	21.3	0.040	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
8.002	10.600	0.250	42.4	0.029	0.00	0.0	0.600		o	225	Pipe/Conduit	
8.003	16.700	0.250	66.8	0.016	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
8.004	19.650	0.550	35.7	0.071	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
8.005	8.365	0.100	83.7	0.004	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
8.006	22.823	0.500	45.6	0.013	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
8.007	56.674	0.450	125.9	0.094	0.00	0.0		0.030	→ ↓ →		Porous Car Park	
1.013	16.875	0.080	210.9	0.017	0.00	0.0	0.600		o	525	Pipe/Conduit	
1.014	8.500	0.040	212.5	0.000	0.00	0.0	0.600		o	525	Pipe/Conduit	
1.015	50.000	0.000	0.0	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.016	1.000	0.083	12.0	0.000	0.00	0.0	0.600		o	150	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)
7.001	50.00	5.85	74.200	0.107	0.0	0.0	0.0	1.49	1541.4	14.5
7.002	50.00	5.92	71.900	0.170	0.0	0.0	0.0	2.72	108.0	23.0
7.003	50.00	7.11	71.450	0.207	0.0	0.0	0.0	0.64	659.1	28.0
7.004	50.00	7.36	71.000	0.252	0.0	0.0	0.0	0.61	527.3	34.1
7.005	50.00	8.19	70.900	0.274	0.0	0.0	0.0	0.58	408.8	37.1
7.006	50.00	9.43	70.525	0.321	0.0	0.0	0.0	0.39	277.0	43.5
8.000	50.00	5.23	74.200	0.025	0.0	0.0	0.0	1.45	1494.8	3.4
8.001	50.00	5.42	73.200	0.065	0.0	0.0	0.0	1.39	1441.3	8.8
8.002	50.00	5.51	72.450	0.094	0.0	0.0	0.0	2.01	80.1	12.7
8.003	50.00	5.86	72.200	0.110	0.0	0.0	0.0	0.79	813.2	14.9
8.004	50.00	6.17	71.950	0.181	0.0	0.0	0.0	1.08	1112.0	24.5
8.005	50.00	6.36	71.400	0.185	0.0	0.0	0.0	0.70	726.7	25.1
8.006	50.00	6.76	71.300	0.198	0.0	0.0	0.0	0.95	983.8	26.8
8.007	50.00	8.41	70.800	0.292	0.0	0.0	0.0	0.57	592.3	39.5
1.013	50.00	19.16	69.470	1.709	0.0	0.0	0.0	1.54	333.0	231.4
1.014	50.00	19.25	69.390	1.709	0.0	0.0	0.0	1.53	331.8	231.4
1.015	50.00	24.85	69.350	1.709	0.0	0.0	0.0	0.15	10.5«	231.4
1.016	50.00	24.85	69.350	1.709	0.0	0.0	0.0	2.92	51.6«	231.4

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
ROAD 3	77.975	0.725	Open Manhole	500	1.000	77.250					
BAFFLE	77.500	0.620	Open Manhole	500	1.001	76.880	150	1.000	76.880		
ROAD 2	77.500	1.120	Open Manhole	500	1.002	76.380		1.001	76.875	150	25
BAFFLE	76.700	0.820	Open Manhole	500	1.003	75.880	150	1.002	75.880		
ROAD 2	76.700	1.265	Open Manhole	500	1.004	75.435		1.003	75.875	150	25
BAFFLE	75.900	0.590	Open Manhole	500	1.005	75.310	150	1.004	75.310		
CP01	76.040	0.690	Open Manhole	1200	2.000	75.350					
ROAD 2	75.900	0.750	Open Manhole	500	1.006	75.150		1.005	75.305	150	
								2.000	75.150		
CP02	75.700	0.750	Open Manhole	1200	1.007	74.950	225	1.006	74.950		
CP03	75.650	0.900	Open Manhole	1200	1.008	74.750	225	1.007	74.750	225	
CP27	76.650	0.750	Open Manhole	1200	3.000	75.900					
CP26	77.000	1.575	Open Manhole	1200	3.001	75.425		3.000	75.425		
CP25	76.200	0.825	Open Manhole	1200	3.002	75.375		3.001	75.375		
CP04	74.960	0.860	Open Manhole	1200	1.009	74.100		1.008	74.400	225	
								3.002	74.100		
CP05	73.750	0.750	Open Manhole	1200	1.010	73.000	225	1.009	73.000		
CP26	73.250	0.620	Open Manhole	1200	4.000	72.630	225				
CP25	73.400	0.905	Open Manhole	1200	4.001	72.495	225	4.000	72.495	225	
CP29	73.500	0.755	Open Manhole	1200	5.000	72.745	225				
CP31	75.000	1.970	Open Manhole	1200	6.000	73.030	150				
CP30	74.500	1.685	Open Manhole	1200	6.001	72.815	300	6.000	72.890	150	
CP28	73.500	0.875	Open Manhole	1200	5.001	72.625	300	5.000	72.625	225	
								6.001	72.625	300	
CP27	73.400	0.890	Open Manhole	1200	5.002	72.510	300	5.001	72.510	300	
CP06	73.250	0.800	Open Manhole	1200	1.011	72.450		1.010	72.450	225	
								4.001	72.450	225	
								5.002	72.450	300	
CP07	71.300	0.700	Open Manhole	1200	1.012	70.600		1.011	70.600		
CP24	76.000	0.800	Open Manhole	1200	7.000	75.200					
CP23	75.000	0.800	Open Manhole	1200	7.001	74.200		7.000	74.200		
CP22	72.750	0.850	Open Manhole	1200	7.002	71.900	225	7.001	71.900		
CP21	72.250	0.800	Open Manhole	1200	7.003	71.450		7.002	71.450	225	
CP20	71.700	0.700	Open Manhole	1200	7.004	71.000		7.003	71.000		
CP19	71.500	0.600	Open Manhole	1200	7.005	70.900		7.004	70.900		
CP09	71.125	0.600	Open Manhole	1200	7.006	70.525		7.005	70.525		
CP18	75.000	0.800	Open Manhole	1200	8.000	74.200					
CP17	74.000	0.800	Open Manhole	1200	8.001	73.200		8.000	73.200		
CP16	73.250	0.800	Open Manhole	1200	8.002	72.450	225	8.001	72.450		
CP15	73.000	0.800	Open Manhole	1200	8.003	72.200		8.002	72.200	225	
CP14	72.750	0.800	Open Manhole	1200	8.004	71.950		8.003	71.950		
CP13	72.200	0.800	Open Manhole	1200	8.005	71.400		8.004	71.400		
CP12	72.100	0.800	Open Manhole	1200	8.006	71.300		8.005	71.300		
CP11	71.600	0.800	Open Manhole	1200	8.007	70.800		8.006	70.800		
CP08	71.000	1.530	Open Manhole	2100	1.013	69.470	525	1.012	70.350		865
								7.006	70.350		765

Manhole Schedules for Storm

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)
								8.007	70.350		965
CP10	71.000	1.610	Open Manhole	2100	1.014	69.390	525	1.013	69.390	525	
POND	70.900	1.550	Open Manhole	500	1.015	69.350	300	1.014	69.350	525	
DUMMY PIPE	71.200	1.850	Sealed Manhole	500	1.016	69.350	150	1.015	69.350	300	
	70.900	1.633	Open Manhole	0		OUTFALL		1.016	69.267	150	

No coordinates have been specified, layout information cannot be produced.

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	→ ↓ →		ROAD 3	77.975	77.250	0.190	Open Manhole	500
1.001	○	150	BAFFLE	77.500	76.880	0.470	Open Manhole	500
1.002	→ ↓ →		ROAD 2	77.500	76.380	0.500	Open Manhole	500
1.003	○	150	BAFFLE	76.700	75.880	0.670	Open Manhole	500
1.004	→ ↓ →		ROAD 2	76.700	75.435	0.700	Open Manhole	500
1.005	○	150	BAFFLE	75.900	75.310	0.440	Open Manhole	500
2.000	→ ↓ →		CP01	76.040	75.350	0.190	Open Manhole	1200
1.006	→ ↓ →		ROAD 2	75.900	75.150	0.190	Open Manhole	500
1.007	○	225	CP02	75.700	74.950	0.525	Open Manhole	1200
1.008	○	225	CP03	75.650	74.750	0.675	Open Manhole	1200
3.000	→ ↓ →		CP27	76.650	75.900	0.190	Open Manhole	1200
3.001	→ ↓ →		CP26	77.000	75.425	1.000	Open Manhole	1200
3.002	→ ↓ →		CP25	76.200	75.375	0.190	Open Manhole	1200
1.009	→ ↓ →		CP04	74.960	74.100	0.190	Open Manhole	1200
1.010	○	225	CP05	73.750	73.000	0.525	Open Manhole	1200
4.000	○	225	CP26	73.250	72.630	0.395	Open Manhole	1200
4.001	○	225	CP25	73.400	72.495	0.680	Open Manhole	1200
5.000	○	225	CP29	73.500	72.745	0.530	Open Manhole	1200
6.000	○	150	CP31	75.000	73.030	1.820	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	60.000	162.2	BAFFLE	77.500	76.880	0.085	Open Manhole	500
1.001	0.500	100.0	ROAD 2	77.500	76.875	0.475	Open Manhole	500
1.002	16.000	32.0	BAFFLE	76.700	75.880	0.200	Open Manhole	500
1.003	0.500	100.0	ROAD 2	76.700	75.875	0.675	Open Manhole	500
1.004	20.700	165.6	BAFFLE	75.900	75.310	0.025	Open Manhole	500
1.005	0.500	100.0	ROAD 2	75.900	75.305	0.445	Open Manhole	500
2.000	46.444	232.2	ROAD 2	75.900	75.150	0.250	Open Manhole	500
1.006	13.800	69.0	CP02	75.700	74.950	0.190	Open Manhole	1200
1.007	16.100	80.5	CP03	75.650	74.750	0.675	Open Manhole	1200
1.008	11.800	33.7	CP04	74.960	74.400	0.335	Open Manhole	1200
3.000	20.300	42.7	CP26	77.000	75.425	1.015	Open Manhole	1200
3.001	17.620	352.4	CP25	76.200	75.375	0.250	Open Manhole	1200
3.002	32.223	25.3	CP04	74.960	74.100	0.225	Open Manhole	1200
1.009	40.610	36.9	CP05	73.750	73.000	0.080	Open Manhole	1200
1.010	9.340	17.0	CP06	73.250	72.450	0.575	Open Manhole	1200
4.000	22.800	168.9	CP25	73.400	72.495	0.680	Open Manhole	1200
4.001	7.860	174.7	CP06	73.250	72.450	0.575	Open Manhole	1200
5.000	20.159	168.0	CP28	73.500	72.625	0.650	Open Manhole	1200
6.000	8.300	59.3	CP30	74.500	72.890	1.460	Open Manhole	1200

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
6.001	o	300	CP30	74.500	72.815	1.385	Open Manhole	1200
5.001	o	300	CP28	73.500	72.625	0.575	Open Manhole	1200
5.002	o	300	CP27	73.400	72.510	0.590	Open Manhole	1200
1.011	→ ↓ →		CP06	73.250	72.450	0.190	Open Manhole	1200
1.012	→ ↓ →		CP07	71.300	70.600	0.190	Open Manhole	1200
7.000	→ ↓ →		CP24	76.000	75.200	0.190	Open Manhole	1200
7.001	→ ↓ →		CP23	75.000	74.200	0.190	Open Manhole	1200
7.002	o	225	CP22	72.750	71.900	0.625	Open Manhole	1200
7.003	→ ↓ →		CP21	72.250	71.450	0.190	Open Manhole	1200
7.004	→ ↓ →		CP20	71.700	71.000	0.190	Open Manhole	1200
7.005	→ ↓ →		CP19	71.500	70.900	0.190	Open Manhole	1200
7.006	→ ↓ →		CP09	71.125	70.525	0.190	Open Manhole	1200
8.000	→ ↓ →		CP18	75.000	74.200	0.190	Open Manhole	1200
8.001	→ ↓ →		CP17	74.000	73.200	0.190	Open Manhole	1200
8.002	o	225	CP16	73.250	72.450	0.575	Open Manhole	1200
8.003	→ ↓ →		CP15	73.000	72.200	0.190	Open Manhole	1200
8.004	→ ↓ →		CP14	72.750	71.950	0.190	Open Manhole	1200
8.005	→ ↓ →		CP13	72.200	71.400	0.190	Open Manhole	1200
8.006	→ ↓ →		CP12	72.100	71.300	0.190	Open Manhole	1200
8.007	→ ↓ →		CP11	71.600	70.800	0.190	Open Manhole	1200
1.013	o	525	CP08	71.000	69.470	1.005	Open Manhole	2100

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
6.001	32.010	168.5	CP28	73.500	72.625	0.575	Open Manhole	1200
5.001	19.894	173.0	CP27	73.400	72.510	0.590	Open Manhole	1200
5.002	10.556	175.9	CP06	73.250	72.450	0.500	Open Manhole	1200
1.011	37.090	20.0	CP07	71.300	70.600	0.090	Open Manhole	1200
1.012	12.330	49.3	CP08	71.000	70.350	0.140	Open Manhole	2100
7.000	27.478	27.5	CP23	75.000	74.200	0.190	Open Manhole	1200
7.001	42.765	18.6	CP22	72.750	71.900	0.240	Open Manhole	1200
7.002	10.526	23.4	CP21	72.250	71.450	0.575	Open Manhole	1200
7.003	45.760	101.7	CP20	71.700	71.000	0.090	Open Manhole	1200
7.004	9.100	91.0	CP19	71.500	70.900	0.090	Open Manhole	1200
7.005	28.785	76.8	CP09	71.125	70.525	0.190	Open Manhole	1200
7.006	29.266	167.2	CP08	71.000	70.350	0.240	Open Manhole	2100
8.000	19.770	19.8	CP17	74.000	73.200	0.190	Open Manhole	1200
8.001	15.950	21.3	CP16	73.250	72.450	0.190	Open Manhole	1200
8.002	10.600	42.4	CP15	73.000	72.200	0.575	Open Manhole	1200
8.003	16.700	66.8	CP14	72.750	71.950	0.190	Open Manhole	1200
8.004	19.650	35.7	CP13	72.200	71.400	0.190	Open Manhole	1200
8.005	8.365	83.7	CP12	72.100	71.300	0.190	Open Manhole	1200
8.006	22.823	45.6	CP11	71.600	70.800	0.190	Open Manhole	1200
8.007	56.674	125.9	CP08	71.000	70.350	0.040	Open Manhole	2100
1.013	16.875	210.9	CP10	71.000	69.390	1.085	Open Manhole	2100

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.014	o	525	CP10	71.000	69.390	1.085	Open Manhole	2100
1.015	o	300	POND	70.900	69.350	1.250	Open Manhole	500
1.016	o	150	DUMMY PIPE	71.200	69.350	1.700	Sealed Manhole	500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.014	8.500	212.5	POND	70.900	69.350	1.025	Open Manhole	500
1.015	50.000	0.0	DUMMY PIPE	71.200	69.350	1.550	Sealed Manhole	500
1.016	1.000	12.0		70.900	69.267	1.483	Open Manhole	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.016		70.900	69.267	0.000	0	0

Online Controls for Storm

Pump Manhole: DUMMY PIPE, DS/PN: 1.016, Volume (m³): 3.9

Invert Level (m) 69.350

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.0000	0.700	0.0000	1.300	0.0000	1.900	0.0000	2.500	0.0000
0.200	0.0000	0.800	0.0000	1.400	0.0000	2.000	0.0000	2.600	0.0000
0.300	0.0000	0.900	0.0000	1.500	0.0000	2.100	0.0000	2.700	0.0000
0.400	0.0000	1.000	0.0000	1.600	0.0000	2.200	0.0000	2.800	0.0000
0.500	0.0000	1.100	0.0000	1.700	0.0000	2.300	0.0000	2.900	0.0000
0.600	0.0000	1.200	0.0000	1.800	0.0000	2.400	0.0000	3.000	0.0000

Storage Structures for Storm

Porous Car Park Pipe: 1.000

Manning's N	0.030	Width (m)	4.8
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	60.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	162.2
Max Percolation (l/s)	80.0	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	77.250		

Porous Car Park Pipe: 1.002

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	16.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	32.0
Max Percolation (l/s)	24.4	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	500
Invert Level (m)	76.380		

Porous Car Park Pipe: 1.004

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	20.7
Membrane Percolation (mm/hr)	1000	Slope (1:X)	165.6
Max Percolation (l/s)	31.6	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	700
Invert Level (m)	75.435		

Porous Car Park Pipe: 2.000

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	46.4
Membrane Percolation (mm/hr)	1000	Slope (1:X)	232.2
Max Percolation (l/s)	71.0	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	75.350		

Under Drain Details			
Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.225	Manning's N	0.006

Porous Car Park Pipe: 1.006

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	13.8
Membrane Percolation (mm/hr)	1000	Slope (1:X)	69.0
Max Percolation (l/s)	21.1	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	75.150		

Porous Car Park Pipe: 3.000

Manning's N	0.030	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30
Membrane Percolation (mm/hr)	1000	Invert Level (m)	75.900
Max Percolation (l/s)	31.0	Width (m)	5.5

Porous Car Park Pipe: 3.000

Length (m) 20.3 Evaporation (mm/day) 3
Slope (1:X) 42.7 Membrane Depth (mm) 190
Depression Storage (mm) 5

Under Drain Details
Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.225 Manning's N 0.006

Porous Car Park Pipe: 3.001

Manning's N 0.030 Width (m) 5.5
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 17.6
Membrane Percolation (mm/hr) 1000 Slope (1:X) 352.4
Max Percolation (l/s) 26.9 Depression Storage (mm) 5
Safety Factor 2.0 Evaporation (mm/day) 3
Porosity 0.30 Membrane Depth (mm) 1000
Invert Level (m) 75.425

Under Drain Details
Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.225 Manning's N 0.006

Porous Car Park Pipe: 3.002

Manning's N 0.030 Width (m) 5.5
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 32.2
Membrane Percolation (mm/hr) 1000 Slope (1:X) 25.3
Max Percolation (l/s) 49.2 Depression Storage (mm) 5
Safety Factor 2.0 Evaporation (mm/day) 3
Porosity 0.30 Membrane Depth (mm) 190
Invert Level (m) 75.375

Porous Car Park Pipe: 1.009

Manning's N 0.030 Width (m) 5.5
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 40.6
Membrane Percolation (mm/hr) 1000 Slope (1:X) 36.9
Max Percolation (l/s) 62.0 Depression Storage (mm) 5
Safety Factor 2.0 Evaporation (mm/day) 3
Porosity 0.30 Membrane Depth (mm) 190
Invert Level (m) 74.100

Under Drain Details
Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.225 Manning's N 0.006

Porous Car Park Pipe: 1.011

Manning's N 0.030 Width (m) 5.5
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 37.1
Membrane Percolation (mm/hr) 1000 Slope (1:X) 20.0
Max Percolation (l/s) 56.7 Depression Storage (mm) 5
Safety Factor 2.0 Evaporation (mm/day) 3
Porosity 0.30 Membrane Depth (mm) 190
Invert Level (m) 72.450

Under Drain Details
Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.300 Manning's N 0.006

Porous Car Park Pipe: 1.012

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	12.3
Membrane Percolation (mm/hr)	1000	Slope (1:X)	49.3
Max Percolation (l/s)	18.8	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	70.600		

Under Drain Details			
Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.300	Manning's N	0.006

Porous Car Park Pipe: 7.000

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	27.5
Membrane Percolation (mm/hr)	1000	Slope (1:X)	27.5
Max Percolation (l/s)	42.0	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	75.200		

Under Drain Details			
Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.225	Manning's N	0.006

Porous Car Park Pipe: 7.001

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	42.8
Membrane Percolation (mm/hr)	1000	Slope (1:X)	18.6
Max Percolation (l/s)	65.3	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	74.200		

Under Drain Details			
Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.225	Manning's N	0.006

Porous Car Park Pipe: 7.003

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	45.8
Membrane Percolation (mm/hr)	1000	Slope (1:X)	101.7
Max Percolation (l/s)	69.9	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	71.450		

Under Drain Details			
Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.225	Manning's N	0.006

Porous Car Park Pipe: 7.004

Manning's N	0.030	Invert Level (m)	71.000
Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.5
Membrane Percolation (mm/hr)	1000	Length (m)	9.1
Max Percolation (l/s)	13.9	Slope (1:X)	91.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3

Porous Car Park Pipe: 7.004

Membrane Depth (mm) 190

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.225	Manning's N	0.006

Porous Car Park Pipe: 7.005

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	28.8
Membrane Percolation (mm/hr)	1000	Slope (1:X)	76.8
Max Percolation (l/s)	44.0	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	70.900		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.225	Manning's N	0.006

Porous Car Park Pipe: 7.006

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	29.3
Membrane Percolation (mm/hr)	1000	Slope (1:X)	167.2
Max Percolation (l/s)	44.7	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	70.525		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.225	Manning's N	0.006

Porous Car Park Pipe: 8.000

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	19.8
Membrane Percolation (mm/hr)	1000	Slope (1:X)	19.8
Max Percolation (l/s)	30.2	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	74.200		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.225	Manning's N	0.006

Porous Car Park Pipe: 8.001

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	16.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	21.3
Max Percolation (l/s)	24.4	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	73.200		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.225	Manning's N	0.006

Porous Car Park Pipe: 8.003

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	16.7
Membrane Percolation (mm/hr)	1000	Slope (1:X)	66.8
Max Percolation (l/s)	25.5	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	72.200		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.225	Manning's N	0.006

Porous Car Park Pipe: 8.004

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	19.7
Membrane Percolation (mm/hr)	1000	Slope (1:X)	35.7
Max Percolation (l/s)	30.0	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	71.950		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.225	Manning's N	0.006

Porous Car Park Pipe: 8.005

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	8.4
Membrane Percolation (mm/hr)	1000	Slope (1:X)	83.7
Max Percolation (l/s)	12.8	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	71.400		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.225	Manning's N	0.006

Porous Car Park Pipe: 8.006

Manning's N	0.030	Width (m)	5.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	22.8
Membrane Percolation (mm/hr)	1000	Slope (1:X)	45.6
Max Percolation (l/s)	34.9	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	190
Invert Level (m)	71.300		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.225	Manning's N	0.006

Porous Car Park Pipe: 8.007

Manning's N	0.030	Invert Level (m)	70.800
Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.5
Membrane Percolation (mm/hr)	1000	Length (m)	56.7
Max Percolation (l/s)	86.6	Slope (1:X)	125.9
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3

Porous Car Park Pipe: 8.007

Membrane Depth (mm) 190

Under Drain Details

Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.225 Manning's N 0.060

Complex Manhole: POND, DS/PN: 1.015

Cellular Storage

Invert Level (m) 69.350 Safety Factor 5.0
Infiltration Coefficient Base (m/hr) 0.15840 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	1000.0	1000.0	0.400	1000.0	1000.0	0.401	0.0	1000.0

Tank or Pond

Invert Level (m) 69.850

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	700.8	1.050	1323.9

Volume Summary (Static)

Length Calculations based on True Length

Pipe Number	USMH Name	Manhole Volume (m³)	Pipe Volume (m³)	Storage Structure Volume (m³)	Total Volume (m³)
1.000	ROAD 3	0.142	45.839	0.000	45.981
1.001	BAFFLE	0.122	0.000	0.000	0.122
1.002	ROAD 2	0.220	15.857	0.000	16.076
1.003	BAFFLE	0.161	0.000	0.000	0.161
1.004	ROAD 2	0.248	18.831	0.000	19.080
1.005	BAFFLE	0.116	0.000	0.000	0.116
2.000	CP01	0.780	38.884	0.000	39.664
1.006	ROAD 2	0.147	11.966	0.000	12.113
1.007	CP02	0.848	0.592	0.000	1.441
1.008	CP03	1.018	0.421	0.000	1.439
3.000	CP27	0.848	18.180	0.000	19.028
3.001	CP26	1.781	16.035	0.000	17.817
3.002	CP25	0.933	32.504	0.000	33.437
1.009	CP04	0.973	44.665	0.000	45.637
1.010	CP05	0.848	0.324	0.000	1.172
4.000	CP26	0.701	0.859	0.000	1.560
4.001	CP25	1.024	0.265	0.000	1.288
5.000	CP29	0.854	0.754	0.000	1.608
6.000	CP31	2.228	0.125	0.000	2.353
6.001	CP30	1.906	2.178	0.000	4.084
5.001	CP28	0.990	1.321	0.000	2.311
5.002	CP27	1.007	0.661	0.000	1.668
1.011	CP06	0.905	37.899	0.000	38.804
1.012	CP07	0.792	9.516	0.000	10.307
7.000	CP24	0.905	27.180	0.000	28.085
7.001	CP23	0.905	42.992	0.000	43.897
7.002	CP22	0.961	0.371	0.000	1.332
7.003	CP21	0.905	46.090	0.000	46.995
7.004	CP20	0.792	6.868	0.000	7.659
7.005	CP19	0.679	19.429	0.000	20.108
7.006	CP09	0.679	19.451	0.000	20.129
8.000	CP18	0.905	19.208	0.000	20.112
8.001	CP17	0.905	15.256	0.000	16.161
8.002	CP16	0.905	0.374	0.000	1.279
8.003	CP15	0.905	16.032	0.000	16.937
8.004	CP14	0.905	19.083	0.000	19.988
8.005	CP13	0.905	7.411	0.000	8.316
8.006	CP12	0.905	22.365	0.000	23.270
8.007	CP11	0.905	56.913	0.000	57.818
1.013	CP08	5.299	3.198	0.000	8.498
1.014	CP10	5.576	1.559	0.000	7.135
1.015	POND	0.304	3.499	1426.088	1429.891
1.016	DUMMY PIPE	0.363	0.013	0.000	0.377
Total		44.197	624.969	1426.088	2095.255

2 YEAR RETURN PERIOD



Micro
Drainage

Designed by Nigel Jones

Checked by

Network 2020.1

Simulation Criteria

Number of Input Hydrographs	0	Number of Offline Controls	0	Number of Time/Area Diagrams	0
Number of Online Controls	1	Number of Storage Structures	25	Number of Real Time Controls	0

Rainfall Model	FEH	Data Type	Point
FEH Rainfall Version	2013 Cv (Summer)		0.750
Site Location	GB 519261 227584 TL 19261 27584 Cv (Winter)		0.840

	Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080	
n Period(s) (years)		2
Climate Change (%)		0

									Water	Surcharged	Flooded		
	US/MH			Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Level	Depth	Volume	Flow /
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	(m)	(m)	(m³)	Cap.	
1.000	ROAD 3	15 Winter	2	+0%					77.293	-0.492	0.000	0.02	
1.001	BAFFLE	15 Winter	2	+0%					76.978	-0.052	0.000	0.76	
1.002	ROAD 2	15 Winter	2	+0%					76.404	-0.596	0.000	0.01	
1.003	BAFFLE	15 Winter	2	+0%					75.979	-0.051	0.000	0.77	
1.004	ROAD 2	30 Winter	2	+0%					75.479	-0.521	0.000	0.02	
1.005	BAFFLE	30 Winter	2	+0%					75.420	-0.040	0.000	0.89	
2.000	CP01	30 Winter	2	+0%					75.409	-0.441	0.000	0.05	
1.006	ROAD 2	30 Winter	2	+0%					75.209	-0.501	0.000	0.04	
1.007	CP02	30 Winter	2	+0%					75.063	-0.112	0.000	0.51	
1.008	CP03	30 Winter	2	+0%					74.840	-0.135	0.000	0.34	
3.000	CP27	15 Winter	2	+0%					75.925	-0.535	0.000	0.01	
3.001	CP26	15 Winter	2	+0%					75.483	-0.517	0.000	0.04	
3.002	CP25	15 Winter	2	+0%					75.418	-0.592	0.000	0.02	
1.009	CP04	15 Winter	2	+0%					74.164	-0.606	0.000	0.04	
1.010	CP05	15 Winter	2	+0%					73.103	-0.122	0.000	0.43	
4.000	CP26	15 Winter	2	+0%					72.688	-0.167	0.000	0.15	
4.001	CP25	15 Winter	2	+0%					72.623	-0.097	0.000	0.61	
5.000	CP29	15 Winter	2	+0%					72.814	-0.156	0.000	0.19	
6.000	CP31	15 Winter	2	+0%					73.091	-0.089	0.000	0.34	
6.001	CP30	15 Winter	2	+0%					72.928	-0.187	0.000	0.30	
5.001	CP28	15 Winter	2	+0%					72.773	-0.152	0.000	0.48	
5.002	CP27	15 Winter	2	+0%					72.683	-0.127	0.000	0.63	
1.011	CP06	15 Winter	2	+0%					72.532	-0.528	0.000	0.06	
1.012	CP07	15 Winter	2	+0%					70.711	-0.399	0.000	0.14	
7.000	CP24	15 Winter	2	+0%					75.219	-0.591	0.000	0.01	
7.001	CP23	15 Winter	2	+0%					74.228	-0.582	0.000	0.01	
7.002	CP22	15 Winter	2	+0%					71.978	-0.147	0.000	0.26	
7.003	CP21	15 Winter	2	+0%					71.517	-0.543	0.000	0.04	
7.004	CP20	15 Winter	2	+0%					71.071	-0.439	0.000	0.07	
7.005	CP19	15 Winter	2	+0%					70.969	-0.341	0.000	0.09	
7.006	CP09	15 Winter	2	+0%					70.618	-0.317	0.000	0.14	

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Overflow (1/s)	Half Drain		Pipe Flow (1/s)	Status	Level Exceeded
			Time (mins)				
1.000	ROAD 3		8		8.3	OK	
1.001	BAFFLE				8.2	OK	
1.002	ROAD 2		9		8.4	OK	
1.003	BAFFLE				8.4	OK	
1.004	ROAD 2		13		9.8	OK	
1.005	BAFFLE				9.7	OK	
2.000	CP01		11		15.5	OK	
1.006	ROAD 2		12		26.0	OK	
1.007	CP02				26.0	OK	
1.008	CP03				26.0	OK	
3.000	CP27		5		8.5	OK	
3.001	CP26		7		11.6	OK	
3.002	CP25		7		25.2	OK	
1.009	CP04		9		44.1	OK	
1.010	CP05				44.7	OK	
4.000	CP26				5.4	OK	
4.001	CP25				18.3	OK	
5.000	CP29				7.0	OK	
6.000	CP31				6.9	OK	
6.001	CP30				23.2	OK	
5.001	CP28				35.5	OK	
5.002	CP27				38.5	OK	
1.011	CP06		10		92.7	OK	
1.012	CP07		10		97.9	OK	
7.000	CP24		5		6.6	OK	
7.001	CP23		5		15.4	OK	
7.002	CP22				23.3	OK	
7.003	CP21		7		28.3	OK	
7.004	CP20		8		32.9	OK	
7.005	CP19		8		35.1	OK	
7.006	CP09		8		38.4	OK	

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded
									Level (m)	Depth (m)	Volume (m³)
8.000	CP18	15 Winter	2	+0%					74.211	-0.599	0.000
8.001	CP17	15 Winter	2	+0%					73.222	-0.588	0.000
8.002	CP16	15 Winter	2	+0%					72.518	-0.157	0.000
8.003	CP15	15 Winter	2	+0%					72.241	-0.569	0.000
8.004	CP14	15 Winter	2	+0%					71.995	-0.565	0.000
8.005	CP13	15 Winter	2	+0%					71.459	-0.551	0.000
8.006	CP12	15 Winter	2	+0%					71.350	-0.560	0.000
8.007	CP11	15 Winter	2	+0%					70.884	-0.526	0.000
1.013	CP08	15 Winter	2	+0%					69.793	-0.202	0.000
1.014	CP10	15 Winter	2	+0%					69.742	-0.173	0.000
1.015	POND	240 Winter	2	+0%					69.616	-0.034	0.000
1.016	DUMMY PIPE	240 Winter	2	+0%	2/60 Summer				69.616	0.116	0.000

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Pipe		Status	Level Exceeded
				Time (mins)	Flow (l/s)		
8.000	CP18	0.00		4	3.9	OK	
8.001	CP17	0.01		5	9.4	OK	
8.002	CP16	0.20			13.4	OK	
8.003	CP15	0.02		7	15.5	OK	
8.004	CP14	0.02		7	24.7	OK	
8.005	CP13	0.04		7	25.4	OK	
8.006	CP12	0.03		8	26.7	OK	
8.007	CP11	0.06		7	37.9	OK	
1.013	CP08	0.65			162.3	OK	
1.014	CP10	0.78			163.4	OK	
1.015	POND	0.03		257	0.8	OK	
1.016	DUMMY PIPE	0.00			0.0	SURCHARGED*	

10 YEAR RETURN PERIOD

Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 25 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
FEH Rainfall Version 2013 Cv (Summer) 0.750
Site Location GB 519261 227584 TL 19261 27584 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 450.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status OFF
DVD Status ON
Inertia Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years) 10
Climate Change (%) 0

								Water	Surcharged	Flooded		
					First (X)	First (Y)	First (Z)	Overflow	Level	Depth	Volume	Flow /
PN	US/MH	Storm	Return	Climate	Surcharge	Flood	Overflow	Act.	(m)	(m)	(m³)	Cap.
1.000	ROAD 3	15 Winter	10	+0%					77.309	-0.476	0.000	0.04
1.001	BAFFLE 15	Winter	10	+0%	10/15	Winter			77.039	0.009	0.000	1.00
1.002	ROAD 2	30 Winter	10	+0%					76.410	-0.590	0.000	0.01
1.003	BAFFLE 30	Winter	10	+0%	10/30	Summer			76.050	0.020	0.000	1.04
1.004	ROAD 2	60 Winter	10	+0%					75.503	-0.497	0.000	0.03
1.005	BAFFLE 60	Winter	10	+0%	10/15	Winter			75.491	0.031	0.000	1.20
2.000	CP01	30 Winter	10	+0%					75.431	-0.419	0.000	0.08
1.006	ROAD 2	30 Winter	10	+0%					75.227	-0.483	0.000	0.06
1.007	CP02	30 Winter	10	+0%					75.100	-0.075	0.000	0.78
1.008	CP03	30 Winter	10	+0%					74.866	-0.109	0.000	0.52
3.000	CP27	15 Winter	10	+0%					75.934	-0.526	0.000	0.02
3.001	CP26	15 Winter	10	+0%					75.506	-0.494	0.000	0.06
3.002	CP25	15 Winter	10	+0%					75.440	-0.570	0.000	0.04
1.009	CP04	15 Winter	10	+0%					74.187	-0.583	0.000	0.06
1.010	CP05	15 Winter	10	+0%					73.144	-0.081	0.000	0.72
4.000	CP26	15 Winter	10	+0%					72.751	-0.104	0.000	0.24
4.001	CP25	15 Winter	10	+0%	10/15	Summer			72.731	0.011	0.000	1.10
5.000	CP29	15 Winter	10	+0%					72.919	-0.051	0.000	0.29
6.000	CP31	15 Winter	10	+0%					73.112	-0.068	0.000	0.57
6.001	CP30	15 Winter	10	+0%					72.981	-0.134	0.000	0.58
5.001	CP28	15 Winter	10	+0%					72.895	-0.030	0.000	0.83
5.002	CP27	15 Winter	10	+0%					72.810	0.000	0.000	1.07
1.011	CP06	15 Winter	10	+0%					72.570	-0.490	0.000	0.11
1.012	CP07	15 Winter	10	+0%					70.763	-0.347	0.000	0.25
7.000	CP24	15 Winter	10	+0%					75.226	-0.584	0.000	0.01
7.001	CP23	15 Winter	10	+0%					74.241	-0.569	0.000	0.02
7.002	CP22	15 Winter	10	+0%					72.014	-0.111	0.000	0.50
7.003	CP21	15 Winter	10	+0%					71.550	-0.510	0.000	0.08
7.004	CP20	15 Winter	10	+0%					71.106	-0.404	0.000	0.12
7.005	CP19	15 Winter	10	+0%					71.003	-0.307	0.000	0.16
7.006	CP09	15 Winter	10	+0%					70.661	-0.274	0.000	0.26

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Overflow (l/s)	Half Drain		Pipe Flow (l/s)	Status	Level Exceeded
			Time (mins)				
1.000	ROAD 3		8		12.5	OK	
1.001	BAFFLE				10.8	SURCHARGED	
1.002	ROAD 2		16		12.1	OK	
1.003	BAFFLE				11.3	SURCHARGED	
1.004	ROAD 2		13		13.1	OK	
1.005	BAFFLE				13.1	FLOOD RISK	
2.000	CP01		12		26.2	OK	
1.006	ROAD 2		13		40.1	OK	
1.007	CP02				40.1	OK	
1.008	CP03				40.1	OK	
3.000	CP27		6		14.1	OK	
3.001	CP26		6		20.4	OK	
3.002	CP25		7		48.5	OK	
1.009	CP04		9		74.3	OK	
1.010	CP05				75.6	OK	
4.000	CP26				8.8	OK	
4.001	CP25				32.9	SURCHARGED	
5.000	CP29				10.6	OK	
6.000	CP31				11.4	OK	
6.001	CP30				45.2	OK	
5.001	CP28				60.8	OK	
5.002	CP27				65.5	OK	
1.011	CP06		8		171.6	OK	
1.012	CP07		6		180.8	OK	
7.000	CP24		5		11.0	OK	
7.001	CP23		5		29.2	OK	
7.002	CP22				45.2	OK	
7.003	CP21		6		55.1	OK	
7.004	CP20		6		62.6	OK	
7.005	CP19		7		66.5	OK	
7.006	CP09		7		71.0	OK	

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)
8.000	CP18	15 Winter	10	+0%					74.217	-0.593	0.000
8.001	CP17	15 Winter	10	+0%					73.232	-0.578	0.000
8.002	CP16	15 Winter	10	+0%					72.547	-0.128	0.000
8.003	CP15	15 Winter	10	+0%					72.261	-0.549	0.000
8.004	CP14	15 Winter	10	+0%					72.018	-0.542	0.000
8.005	CP13	15 Winter	10	+0%					71.490	-0.520	0.000
8.006	CP12	15 Winter	10	+0%					71.376	-0.534	0.000
8.007	CP11	15 Winter	10	+0%					70.929	-0.481	0.000
1.013	CP08	15 Winter	10	+0%	10/15 Summer				70.190	0.195	0.000
1.014	CP10	15 Winter	10	+0%	10/15 Summer				70.019	0.104	0.000
1.015	POND	240 Winter	10	+0%	10/60 Winter				69.896	0.246	0.000
1.016	DUMMY PIPE	240 Winter	10	+0%	10/15 Summer				71.200	1.700	0.000

Half Drain Pipe							
PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
8.000	CP18	0.00		4	6.6	OK	
8.001	CP17	0.01		5	17.9	OK	
8.002	CP16	0.39			26.0	OK	
8.003	CP15	0.04		5	30.1	OK	
8.004	CP14	0.05		6	49.3	OK	
8.005	CP13	0.07		6	51.1	OK	
8.006	CP12	0.06		7	53.4	OK	
8.007	CP11	0.13		5	75.1	OK	
1.013	CP08	1.27			315.0	SURCHARGED	
1.014	CP10	1.50			314.5	SURCHARGED	
1.015	POND	1.92		401	62.6	SURCHARGED	
1.016	DUMMY PIPE	2.80			50.6	FLOOD RISK*	

30 YEAR RETURN PERIOD

Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 25 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
FEH Rainfall Version 2013 Cv (Summer) 0.750
Site Location GB 519261 227584 TL 19261 27584 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 450.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status OFF
DVD Status ON
Inertia Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960,
1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years) 30
Climate Change (%) 0

								Water	Surcharged	Flooded		
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.
1.000	ROAD 3	15 Winter	30	+0%					77.319	-0.466	0.000	0.04
1.001	BAFFLE 15	Winter	30	+0%	30/15	Summer			77.076	0.046	0.000	1.39
1.002	ROAD 2	30 Winter	30	+0%					76.414	-0.586	0.000	0.01
1.003	BAFFLE 30	Winter	30	+0%	30/15	Summer			76.077	0.047	0.000	1.41
1.004	ROAD 2	30 Winter	30	+0%					75.529	-0.471	0.000	0.04
1.005	BAFFLE 30	Winter	30	+0%	30/15	Summer			75.521	0.061	0.000	1.57
2.000	CP01	30 Winter	30	+0%					75.445	-0.405	0.000	0.11
1.006	ROAD 2	30 Winter	30	+0%					75.241	-0.469	0.000	0.08
1.007	CP02	30 Winter	30	+0%					75.143	-0.032	0.000	1.00
1.008	CP03	30 Winter	30	+0%					74.885	-0.090	0.000	0.67
3.000	CP27	15 Winter	30	+0%					75.940	-0.520	0.000	0.02
3.001	CP26	15 Winter	30	+0%					75.520	-0.480	0.000	0.08
3.002	CP25	15 Winter	30	+0%					75.451	-0.559	0.000	0.05
1.009	CP04	15 Winter	30	+0%					74.203	-0.567	0.000	0.08
1.010	CP05	15 Winter	30	+0%					73.174	-0.051	0.000	0.95
4.000	CP26	15 Winter	30	+0%					72.801	-0.054	0.000	0.33
4.001	CP25	15 Winter	30	+0%	30/15	Summer			72.775	0.055	0.000	1.52
5.000	CP29	15 Winter	30	+0%	30/15	Summer			73.032	0.062	0.000	0.40
6.000	CP31	15 Winter	30	+0%					73.155	-0.025	0.000	0.71
6.001	CP30	15 Winter	30	+0%					73.089	-0.026	0.000	0.71
5.001	CP28	15 Winter	30	+0%	30/15	Summer			73.001	0.076	0.000	1.09
5.002	CP27	15 Winter	30	+0%	30/15	Summer			72.860	0.050	0.000	1.41
1.011	CP06	15 Winter	30	+0%					72.593	-0.467	0.000	0.15
1.012	CP07	15 Winter	30	+0%					70.795	-0.315	0.000	0.33
7.000	CP24	15 Winter	30	+0%					75.230	-0.580	0.000	0.01
7.001	CP23	15 Winter	30	+0%					74.248	-0.562	0.000	0.02
7.002	CP22	15 Winter	30	+0%					72.035	-0.090	0.000	0.65
7.003	CP21	15 Winter	30	+0%					71.567	-0.493	0.000	0.11
7.004	CP20	15 Winter	30	+0%					71.124	-0.386	0.000	0.16
7.005	CP19	15 Winter	30	+0%					71.018	-0.292	0.000	0.21
7.006	CP09	15 Winter	30	+0%					70.683	-0.252	0.000	0.33

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Overflow (l/s)	Half Drain		Pipe Flow (l/s)	Status	Level Exceeded
			Time (mins)				
1.000	ROAD 3		7		15.3	OK	
1.001	BAFFLE				15.1	FLOOD RISK	
1.002	ROAD 2		14		15.4	OK	
1.003	BAFFLE				15.3	SURCHARGED	
1.004	ROAD 2		12		17.1	OK	
1.005	BAFFLE				17.0	FLOOD RISK	
2.000	CP01		12		34.3	OK	
1.006	ROAD 2		13		52.1	OK	
1.007	CP02				51.4	OK	
1.008	CP03				51.4	OK	
3.000	CP27		6		18.3	OK	
3.001	CP26		6		26.4	OK	
3.002	CP25		7		63.4	OK	
1.009	CP04		9		97.4	OK	
1.010	CP05				99.2	OK	
4.000	CP26				12.0	FLOOD RISK	
4.001	CP25				45.3	SURCHARGED	
5.000	CP29				14.4	SURCHARGED	
6.000	CP31				14.4	OK	
6.001	CP30				55.6	OK	
5.001	CP28				79.9	SURCHARGED	
5.002	CP27				86.7	SURCHARGED	
1.011	CP06		7		229.4	OK	
1.012	CP07		6		241.2	OK	
7.000	CP24		5		14.2	OK	
7.001	CP23		5		38.0	OK	
7.002	CP22				58.8	OK	
7.003	CP21		6		70.4	OK	
7.004	CP20		6		80.7	OK	
7.005	CP19		6		84.5	OK	
7.006	CP09		6		89.9	FLOOD RISK	

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)
8.000	CP18	15 Winter	30	+0%					74.220	-0.590	0.000
8.001	CP17	15 Winter	30	+0%					73.237	-0.573	0.000
8.002	CP16	15 Winter	30	+0%					72.564	-0.111	0.000
8.003	CP15	15 Winter	30	+0%					72.271	-0.539	0.000
8.004	CP14	15 Winter	30	+0%					72.030	-0.530	0.000
8.005	CP13	15 Winter	30	+0%					71.505	-0.505	0.000
8.006	CP12	15 Winter	30	+0%					71.389	-0.521	0.000
8.007	CP11	15 Winter	30	+0%					70.951	-0.459	0.000
1.013	CP08	15 Winter	30	+0%	30/15 Summer				70.417	0.422	0.000
1.014	CP10	15 Winter	30	+0%	30/15 Summer				70.135	0.220	0.000
1.015	POND	360 Winter	30	+0%	30/30 Winter				70.069	0.419	0.000
1.016	DUMMY PIPE	960 Winter	30	+0%	30/15 Summer				71.200	1.700	0.000

Half Drain Pipe							
PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
8.000	CP18	0.01		5	8.6	OK	
8.001	CP17	0.02		5	23.3	OK	
8.002	CP16	0.50			33.7	OK	
8.003	CP15	0.05		5	39.2	OK	
8.004	CP14	0.06		6	63.9	OK	
8.005	CP13	0.10		6	66.2	OK	
8.006	CP12	0.07		6	69.1	OK	
8.007	CP11	0.17		5	97.4	OK	
1.013	CP08	1.65			409.2	SURCHARGED	
1.014	CP10	1.95			407.9	SURCHARGED	
1.015	POND	2.16		495	70.3	SURCHARGED	
1.016	DUMMY PIPE	3.67			66.3	FLOOD RISK*	

100 YEAR RETURN PERIOD + 40% CLIMATE CHANGE

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Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded		Half Drain Time (mins)	Pipe		Status	Level Exceeded
		Volume (m³)	Flow / Overflow Cap. (l/s)		Flow (l/s)			
1.000	ROAD 3	0.000	0.07		7 25.0		OK	
1.001	BAFFLE	0.000	2.25		24.5	FLOOD RISK		
1.002	ROAD 2	0.000	0.02	18	25.8		OK	
1.003	BAFFLE	0.000	2.34		25.3	SURCHARGED		
1.004	ROAD 2	0.000	0.07	13	29.1		OK	
1.005	BAFFLE	0.000	2.67		28.9	FLOOD RISK		
2.000	CP01	0.000	0.16	13	50.8		OK	
1.006	ROAD 2	0.000	0.12	10	78.3		OK	
1.007	CP02	0.000	1.51		77.6	FLOOD RISK		
1.008	CP03	0.000	1.00		76.7	OK		
3.000	CP27	0.000	0.04	6	33.0		OK	
3.001	CP26	0.000	0.15	5	47.7		OK	
3.002	CP25	0.000	0.09	7	114.2		OK	
1.009	CP04	0.000	0.12	6	152.2		OK	
1.010	CP05	0.000	1.36		141.8	FLOOD RISK		
4.000	CP26	0.000	0.61		22.3	FLOOD RISK		

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Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) SurchARGE	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
4.001	CP25	15 Winter	100	+40%	100/15 Summer				73.016
5.000	CP29	15 Winter	100	+40%	100/15 Summer				73.497
6.000	CP31	15 Winter	100	+40%	100/15 Summer				73.984
6.001	CP30	15 Winter	100	+40%	100/15 Summer				73.786
5.001	CP28	15 Winter	100	+40%	100/15 Summer				73.490
5.002	CP27	15 Winter	100	+40%	100/15 Summer				73.093
1.011	CP06	15 Winter	100	+40%					72.636
1.012	CP07	15 Winter	100	+40%					70.918
7.000	CP24	15 Winter	100	+40%					75.242
7.001	CP23	15 Winter	100	+40%					74.268
7.002	CP22	15 Winter	100	+40%	100/15 Summer				72.224
7.003	CP21	15 Winter	100	+40%					71.610
7.004	CP20	15 Winter	100	+40%					71.176
7.005	CP19	15 Winter	100	+40%					71.068
7.006	CP09	15 Winter	100	+40%					70.935
8.000	CP18	15 Winter	100	+40%					74.229
8.001	CP17	15 Winter	100	+40%					73.253
8.002	CP16	15 Winter	100	+40%					72.619
8.003	CP15	15 Winter	100	+40%					72.302
8.004	CP14	15 Winter	100	+40%					72.064
8.005	CP13	15 Winter	100	+40%					71.551
8.006	CP12	15 Winter	100	+40%					71.428
8.007	CP11	15 Winter	100	+40%					71.020
1.013	CP08	15 Winter	100	+40%	100/15 Summer				70.868
1.014	CP10	600 Winter	100	+40%	100/15 Summer				70.671
1.015	POND	600 Winter	100	+40%	100/15 Summer				70.672
1.016	DUMMY PIPE	5760 Summer	100	+40%	100/15 Summer				71.200

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
4.001	CP25	0.296	0.000	2.70			80.6	FLOOD RISK	
5.000	CP29	0.527	0.000	0.93			33.7	FLOOD RISK	
6.000	CP31	0.804	0.000	1.32			26.7	SURCHARGED	
6.001	CP30	0.671	0.000	1.22			94.9	SURCHARGED	
5.001	CP28	0.565	0.000	1.83			134.1	FLOOD RISK	
5.002	CP27	0.283	0.000	2.40			147.1	FLOOD RISK	
1.011	CP06	-0.424	0.000	0.24		9	360.1	OK	
1.012	CP07	-0.192	0.000	0.51		5	370.3	FLOOD RISK	
7.000	CP24	-0.568	0.000	0.02		6	25.7	OK	
7.001	CP23	-0.542	0.000	0.05		6	68.7	OK	
7.002	CP22	0.099	0.000	1.10			99.9	SURCHARGED	
7.003	CP21	-0.450	0.000	0.18		5	119.4	OK	
7.004	CP20	-0.334	0.000	0.28		6	139.0	OK	
7.005	CP19	-0.242	0.000	0.32		7	130.1	FLOOD RISK	
7.006	CP09	0.000	0.000	0.59		6	161.6	FLOOD RISK	
8.000	CP18	-0.581	0.000	0.01		5	15.5	OK	

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Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Surcharged		Flooded		Half Drain		Pipe	Status	Level Exceeded
		Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Flow (l/s)		
8.001	CP17	-0.557	0.000	0.03		5	42.1		OK	
8.002	CP16	-0.056	0.000	0.91			60.9		OK	
8.003	CP15	-0.508	0.000	0.09		5	70.8		OK	
8.004	CP14	-0.496	0.000	0.11		5	116.3		OK	
8.005	CP13	-0.459	0.000	0.17		5	119.4		OK	
8.006	CP12	-0.482	0.000	0.13		5	126.5		OK	
8.007	CP11	-0.390	0.000	0.20		5	120.0		OK	
1.013	CP08	0.873	0.000	2.20			547.5		FLOOD RISK	
1.014	CP10	0.756	0.000	0.49			102.3		FLOOD RISK	
1.015	POND	1.022	0.000	2.89		1139	94.1		FLOOD RISK	
1.016	DUMMY PIPE	1.700	0.000	0.00			0.0		FLOOD RISK*	

PROPOSED DRAINED AREAS & PIPE REFERENCE PLAN



PN	ROOF + 10% (m2)	ROAD (m2)	TOTAL (m2)
1.000	235.400	564.000	799.400
1.001	0.000	0.000	0.000
1.002	34.100	120.400	154.500
1.003	0.000	0.000	0.000
1.004	214.300	233.500	447.800
1.005	0.000	0.000	0.000
2.000	745.100	1123.000	1868.100
1.006	172.900	62.200	235.100
1.007	0.000	0.000	0.000
3.000	171.400	354.800	526.200
3.001	0.000	259.900	259.900
3.002	334.517	788.980	1123.497
1.008	0.000	0.000	0.000
1.009	0.000	440.545	440.545
1.010	0.000	104.013	104.013
1.011	0.000	254.471	254.471
1.012	302.386	205.377	507.763
4.000	112.687	231.426	344.113
4.001	617.931	339.290	957.221
5.000	219.651	232.248	451.899
5.001	168.740	282.164	450.904
5.002	117.497	106.752	224.249
6.000	200.968	225.074	426.042
6.001	487.553	722.186	1209.739
7.000	110.600	298.703	409.303
7.001	170.534	486.352	656.886
7.002	408.520	218.362	626.882
7.003	97.336	275.771	373.107
7.004	247.156	200.904	448.060
7.005	41.292	177.531	218.823
7.006	167.043	306.442	473.485
8.000	0.000	245.858	245.858
8.001	246.781	156.068	402.849
8.002	78.914	211.475	290.389
8.003	70.773	89.550	160.323
8.004	253.707	456.377	710.084
8.005	0.000	35.552	35.552
8.006	0.000	134.198	134.198
8.007	512.533	422.819	935.352
1.013	78.288	93.917	172.205
1.014	0.000	0.000	0.000
1.015	0.000	0.000	0.000
			17078.810

NOTES

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEER'S DRAWINGS. ANY DISCREPANCIES FOUND BETWEEN INFORMATION SHOWN ON THIS OR ANY OTHER DRAWING SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY AND PRIOR TO ANY WORKS COMMENCING ON SITE.

2. TEMPORARY CONNECTION FROM PHASE 1 TO OUTFALL. TO BE ABANDONED FOLLOWING PHASE 2 & 3 DETAILED DESIGN & CONSTRUCTION.

3. FLOOR LEVELS FOR PHASES 2 & 3 ARE INDICATIVE ONLY & MAY ALTER FOLLOWING DETAILED DESIGN OF THESE PHASES.

— SITE DEVELOPMENT BOUNDARY

— PHASE 1 BOUNDARY

— PHASE 2 & 3 BOUNDARY

P1	13.12.24	ISSUED FOR PLANNING	BH	NG
REV	DATE	DESCRIPTION	BY	CHK

PLANNING

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SITE

POUNDFIELDS
HITCHIN – PHASE 2 & 3

TITLE

Pipe Reference &
Drained Areas Plan

wintech

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