SDP

CONSULTING
ENGINEERS
(SOUTH)

HOOK NORTON ROAD

SIBFORD FERRIS

Job No E21-077 (First)

MICRODRAINAGE SURFACE WATER

DRAINAGE CALCULATIONS

MAY 2022 – First Issue

21a Bargates, Christchurch, Dorset BH23 1QD

T: 01727 844606 F: 01202 490601 E: sdpsouth@sdpce.co.uk

APPENDIX

MICRODRAINAGE SURFACE WATER NETWORK CALCULATIONS –

INFILTRATION POND NETWORK

PLOT 16 SOAKAWAY DESIGN

PLOT 17 SOAKAWAY DESIGN

PLOT 18 SOAKAWAY DESIGN

PLOT 19 SOAKAWAY DESIGN

PLOT 20 SOAKAWAY DESIGN

PLOT 21 SOAKAWAY DESIGN

PLOT 22 SOAKAWAY DESIGN

PLOT 23 SOAKAWAY DESIGN

PLOT 24 SOAKAWAY DESIGN

PLOT 25 SOAKAWAY DESIGN

DRAINED AREAS PLAN

MICRODRAINAGE SURFACE WATER NETWORK CALCULATION

INFILTRATION POND NETWORK

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 435421 237092 SP 35421 37092
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 (%)	40
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)
0-4	0.038	4-8	0.394	8-12	0.055	12-16	0.037	16-20	0.027

Total Area Contributing (ha) = 0.550

Total Pipe Volume (m³) = 20.287

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)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	14.514	0.590	24.6	0.032	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	17.657	0.860	20.5	0.056	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.002	18.989	0.685	27.7	0.030	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.003	10.871	0.345	31.5	0.033	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.004	14.409	0.645	22.3	0.033	0.00	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)
1.000	50.00	5.12	177.500	0.032	0.0	0.0	1.7	2.04	36.0	6.1
1.001	50.00	5.25	176.910	0.088	0.0	0.0	4.8	2.23	39.5	16.7
1.002	50.00	5.42	176.050	0.118	0.0	0.0	6.4	1.92	33.9	22.4
1.003	50.00	5.49	175.290	0.151	0.0	0.0	8.2	2.34	93.0	28.6
1.004	50.00	5.58	174.945	0.184	0.0	0.0	10.0	2.78	110.6	34.9

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)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.005	8.947	1.395	6.4	0.008	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.000	32.928	0.195	168.9	0.075	15.00	0.0	0.600	o	225	Pipe/Conduit	
3.000	2.000	0.025	80.0	0.013	7.00	0.0	0.600	o	150	Pipe/Conduit	
1.006	21.100	0.105	201.0	0.015	0.00	0.0	0.600	o	300	Pipe/Conduit	
4.000	30.971	0.990	31.3	0.062	15.00	0.0	0.600	o	150	Pipe/Conduit	
5.000	17.602	1.035	17.0	0.029	5.00	0.0	0.600	o	150	Pipe/Conduit	
4.001	39.331	3.975	9.9	0.056	0.00	0.0	0.600	o	225	Pipe/Conduit	
4.002	6.033	0.600	10.1	0.015	0.00	0.0	0.600	o	225	Pipe/Conduit	
6.000	2.000	0.025	80.0	0.030	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.007	57.017	0.230	247.9	0.063	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.008	14.941	0.080	186.8	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.009	21.040	0.090	233.8	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.010	20.000	0.000	0.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.011	1.000	0.010	100.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.005	50.00	5.61	174.300	0.192	0.0	0.0	10.4	5.20	206.8	36.4
2.000	50.00	15.55	173.100	0.075	0.0	0.0	4.1	1.00	39.9	14.2
3.000	50.00	7.03	173.005	0.013	0.0	0.0	0.7	1.12	19.9	2.5
1.006	50.00	15.87	172.830	0.295	0.0	0.0	16.0	1.11	78.1	55.9
4.000	50.00	15.29	178.440	0.062	0.0	0.0	3.4	1.81	31.9	11.8
5.000	50.00	5.12	178.485	0.029	0.0	0.0	1.6	2.45	43.4	5.5
4.001	50.00	15.44	177.375	0.147	0.0	0.0	8.0	4.18	166.4	27.9
4.002	50.00	15.47	173.400	0.162	0.0	0.0	8.8	4.15	165.0	30.7
6.000	50.00	5.03	172.900	0.030	0.0	0.0	1.6	1.12	19.9	5.7
1.007	50.00	16.69	172.650	0.550	0.0	0.0	29.8	1.15	126.6	104.3
1.008	50.00	16.88	172.420	0.550	0.0	0.0	29.8	1.32	146.1	104.3
1.009	50.00	17.18	172.340	0.550	0.0	0.0	29.8	1.18	130.4	104.3
1.010	50.00	19.11	172.200	0.550	0.0	0.0	29.8	0.17	19.1«	104.3
1.011	50.00	19.13	172.200	0.550	0.0	0.0	29.8	0.77	6.0«	104.3

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)
S10	178.950	1.450	Open Manhole	1200	1.000	177.500	150				
S9	178.575	1.665	Open Manhole	1200	1.001	176.910	150	1.000	176.910	150	
S8	177.840	1.790	Open Manhole	1200	1.002	176.050	150	1.001	176.050	150	
S7	177.100	1.810	Open Manhole	1200	1.003	175.290	225	1.002	175.365	150	
S6	176.680	1.735	Open Manhole	1200	1.004	174.945	225	1.003	174.945	225	
S5	176.130	1.830	Open Manhole	1200	1.005	174.300	225	1.004	174.300	225	
S41	174.525	1.425	Open Manhole	1350	2.000	173.100	225				
SPUR	176.090	3.085	Junction		3.000	173.005	150				
S4	176.090	3.260	Open Manhole	1200	1.006	172.830	300	1.005	172.905	225	
								2.000	172.905	225	
								3.000	172.980	150	
S33	179.840	1.400	Open Manhole	1200	4.000	178.440	150				
S34	179.885	1.400	Open Manhole	1350	5.000	178.485	150				
S32	179.040	1.665	Open Manhole	1350	4.001	177.375	225	4.000	177.450	150	
								5.000	177.450	150	
S31	177.170	3.770	Open Manhole	1200	4.002	173.400	225	4.001	173.400	225	
SPUR	176.950	4.050	Open Manhole	1200	6.000	172.900	150				
S3	176.950	4.300	Open Manhole	1500	1.007	172.650	375	1.006	172.725	300	
								4.002	172.800	225	
								6.000	172.875	150	
S2	176.720	4.300	Open Manhole	1500	1.008	172.420	375	1.007	172.420	375	
S1	176.000	3.660	Open Manhole	1500	1.009	172.340	375	1.008	172.340	375	
POND	174.000	1.800	Open Manhole	1200	1.010	172.200	375	1.009	172.250	375	50
DUMMY PIPE	174.500	2.300	Open Manhole	1200	1.011	172.200	100	1.010	172.200	375	
	173.800	1.610	Open Manhole	0		OUTFALL		1.011	172.190	100	

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	o	150	S10	178.950	177.500	1.300	Open Manhole	1200
1.001	o	150	S9	178.575	176.910	1.515	Open Manhole	1200
1.002	o	150	S8	177.840	176.050	1.640	Open Manhole	1200
1.003	o	225	S7	177.100	175.290	1.585	Open Manhole	1200
1.004	o	225	S6	176.680	174.945	1.510	Open Manhole	1200
1.005	o	225	S5	176.130	174.300	1.605	Open Manhole	1200
2.000	o	225	S41	174.525	173.100	1.200	Open Manhole	1350
3.000	o	150	SPUR	176.090	173.005	2.935	Junction	
1.006	o	300	S4	176.090	172.830	2.960	Open Manhole	1200
4.000	o	150	S33	179.840	178.440	1.250	Open Manhole	1200
5.000	o	150	S34	179.885	178.485	1.250	Open Manhole	1350
4.001	o	225	S32	179.040	177.375	1.440	Open Manhole	1350
4.002	o	225	S31	177.170	173.400	3.545	Open Manhole	1200
6.000	o	150	SPUR	176.950	172.900	3.900	Open Manhole	1200
1.007	o	375	S3	176.950	172.650	3.925	Open Manhole	1500
1.008	o	375	S2	176.720	172.420	3.925	Open Manhole	1500
1.009	o	375	S1	176.000	172.340	3.285	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)
1.000	14.514	24.6	S9	178.575	176.910	1.515	Open Manhole	1200
1.001	17.657	20.5	S8	177.840	176.050	1.640	Open Manhole	1200
1.002	18.989	27.7	S7	177.100	175.365	1.585	Open Manhole	1200
1.003	10.871	31.5	S6	176.680	174.945	1.510	Open Manhole	1200
1.004	14.409	22.3	S5	176.130	174.300	1.605	Open Manhole	1200
1.005	8.947	6.4	S4	176.090	172.905	2.960	Open Manhole	1200
2.000	32.928	168.9	S4	176.090	172.905	2.960	Open Manhole	1200
3.000	2.000	80.0	S4	176.090	172.980	2.960	Open Manhole	1200
1.006	21.100	201.0	S3	176.950	172.725	3.925	Open Manhole	1500
4.000	30.971	31.3	S32	179.040	177.450	1.440	Open Manhole	1350
5.000	17.602	17.0	S32	179.040	177.450	1.440	Open Manhole	1350
4.001	39.331	9.9	S31	177.170	173.400	3.545	Open Manhole	1200
4.002	6.033	10.1	S3	176.950	172.800	3.925	Open Manhole	1500
6.000	2.000	80.0	S3	176.950	172.875	3.925	Open Manhole	1500
1.007	57.017	247.9	S2	176.720	172.420	3.925	Open Manhole	1500
1.008	14.941	186.8	S1	176.000	172.340	3.285	Open Manhole	1500
1.009	21.040	233.8	POND	174.000	172.250	1.375	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)
1.010	o	375	POND	174.000	172.200	1.425	Open Manhole	1200
1.011	o	100	DUMMY PIPE	174.500	172.200	2.200	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)
1.010	20.000	0.0	DUMMY PIPE	174.500	172.200	1.925	Open Manhole	1200
1.011	1.000	100.0		173.800	172.190	1.510	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)
1.011		173.800	172.190	0.000	0	0

Online Controls for Storm

Pump Manhole: DUMMY PIPE, DS/PN: 1.011, Volume (m³): 4.7

Invert Level (m) 172.200

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)
0.200	0.0000	1.400	0.0000	2.600	0.0000	3.800	0.0000	5.000	0.0000
0.400	0.0000	1.600	0.0000	2.800	0.0000	4.000	0.0000	5.200	0.0000
0.600	0.0000	1.800	0.0000	3.000	0.0000	4.200	0.0000	5.400	0.0000
0.800	0.0000	2.000	0.0000	3.200	0.0000	4.400	0.0000	5.600	0.0000
1.000	0.0000	2.200	0.0000	3.400	0.0000	4.600	0.0000	5.800	0.0000
1.200	0.0000	2.400	0.0000	3.600	0.0000	4.800	0.0000	6.000	0.0000

Storage Structures for Storm

Infiltration Basin Manhole: POND, DS/PN: 1.010

Invert Level (m) 172.200 Safety Factor 10.0
Infiltration Coefficient Base (m/hr) 0.24120 Porosity 1.00
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	252.0	1.800	667.0

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	S10	1.640	0.235	0.000	1.875
1.001	S9	1.883	0.291	0.000	2.174
1.002	S8	2.024	0.314	0.000	2.339
1.003	S7	2.047	0.385	0.000	2.432
1.004	S6	1.962	0.525	0.000	2.487
1.005	S5	2.070	0.308	0.000	2.378
2.000	S41	2.040	1.259	0.000	3.298
3.000	SPUR	0.000	0.025	0.000	0.025
1.006	S4	3.687	1.396	0.000	5.083
4.000	S33	1.583	0.525	0.000	2.108
5.000	S34	2.004	0.287	0.000	2.291
4.001	S32	2.383	1.513	0.000	3.896
4.002	S31	4.264	0.186	0.000	4.450
6.000	SPUR	4.580	0.011	0.000	4.592
1.007	S3	7.599	6.132	0.000	13.730
1.008	S2	7.599	1.485	0.000	9.083
1.009	S1	6.468	2.175	0.000	8.642
1.010	POND	2.036	2.076	797.388	801.500
1.011	DUMMY PIPE	2.601	0.003	0.000	2.604
Total		58.470	19.131	797.388	874.989

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 Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 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 435421 237092 SP 35421 37092		Cv (Winter) 0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
1.000	S10	15 Winter	100	+40%	100/15 Summer				178.665	1.015
1.001	S9	15 Winter	100	+40%	100/15 Summer				178.528	1.468
1.002	S8	15 Winter	100	+40%	100/15 Summer				177.513	1.313
1.003	S7	15 Winter	100	+40%	100/15 Winter				175.528	0.013
1.004	S6	15 Winter	100	+40%	100/15 Winter				175.265	0.095
1.005	S5	15 Winter	100	+40%	100/15 Summer				174.803	0.278
2.000	S41	15 Winter	100	+40%	100/15 Summer				174.508	1.183
3.000	SPUR	15 Summer	100	+40%					173.155	0.000
1.006	S4	15 Winter	100	+40%	100/15 Summer				174.439	1.309
4.000	S33	30 Winter	100	+40%					178.534	-0.056
5.000	S34	15 Winter	100	+40%					178.558	-0.077
4.001	S32	15 Winter	100	+40%					177.485	-0.115
4.002	S31	15 Winter	100	+40%	100/15 Summer				174.423	0.798
6.000	SPUR	15 Winter	100	+40%	100/15 Summer				174.203	1.153
1.007	S3	15 Winter	100	+40%	100/15 Summer				174.138	1.113
1.008	S2	15 Winter	100	+40%	100/15 Summer				173.305	0.510
1.009	S1	720 Winter	100	+40%	100/15 Summer				173.289	0.574
1.010	POND	720 Winter	100	+40%	100/15 Summer				173.287	0.712
1.011	DUMMY PIPE	600 Winter	100	+40%	100/15 Summer				174.188	1.888

PN	US/MH Name	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S10	0.000	0.52			17.4	FLOOD RISK	
1.001	S9	0.000	1.09			40.2	FLOOD RISK	
1.002	S8	0.000	1.70			54.0	SURCHARGED	
1.003	S7	0.000	0.92			72.2	SURCHARGED	

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

PN	US/MH Name	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.004	S6	0.000	0.97			93.5	SURCHARGED	
1.005	S5	0.000	0.57			94.1	SURCHARGED	
2.000	S41	0.000	0.96			36.0	FLOOD RISK	
3.000	SPUR	0.000	0.89			9.7	SURCHARGED*	
1.006	S4	0.000	1.82			124.8	SURCHARGED	
4.000	S33	0.000	0.72			22.0	OK	
5.000	S34	0.000	0.47			19.0	OK	
4.001	S32	0.000	0.47			74.1	OK	
4.002	S31	0.000	0.70			76.9	SURCHARGED	
6.000	SPUR	0.000	1.46			15.8	SURCHARGED	
1.007	S3	0.000	1.89			223.4	SURCHARGED	
1.008	S2	0.000	2.02			223.2	SURCHARGED	
1.009	S1	0.000	0.25			27.7	SURCHARGED	
1.010	POND	0.000	0.14		1469	4.5	SURCHARGED	
1.011	DUMMY PIPE	0.000	0.00			0.0	SURCHARGED	

PLOT 16 SOAKAWAY DESIGN

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 96 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.390	0.390	0.5	3.7	O K
30 min Summer	8.486	0.486	0.6	4.6	O K
60 min Summer	8.544	0.544	0.6	5.2	O K
120 min Summer	8.545	0.545	0.6	5.2	O K
180 min Summer	8.533	0.533	0.6	5.1	O K
240 min Summer	8.515	0.515	0.6	4.9	O K
360 min Summer	8.473	0.473	0.6	4.5	O K
480 min Summer	8.429	0.429	0.5	4.1	O K
600 min Summer	8.387	0.387	0.5	3.7	O K
720 min Summer	8.347	0.347	0.5	3.3	O K
960 min Summer	8.275	0.275	0.5	2.6	O K
1440 min Summer	8.167	0.167	0.4	1.6	O K
2160 min Summer	8.074	0.074	0.4	0.7	O K
2880 min Summer	8.046	0.046	0.3	0.4	O K
4320 min Summer	8.033	0.033	0.2	0.3	O K
5760 min Summer	8.027	0.027	0.2	0.3	O K
7200 min Summer	8.023	0.023	0.2	0.2	O K
8640 min Summer	8.020	0.020	0.1	0.2	O K
10080 min Summer	8.018	0.018	0.1	0.2	O K
15 min Winter	8.441	0.441	0.5	4.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	145.506	0.0	18
30 min Summer	95.775	0.0	32
60 min Summer	59.788	0.0	60
120 min Summer	35.743	0.0	92
180 min Summer	26.492	0.0	126
240 min Summer	21.383	0.0	160
360 min Summer	15.710	0.0	230
480 min Summer	12.547	0.0	298
600 min Summer	10.493	0.0	362
720 min Summer	9.040	0.0	428
960 min Summer	7.102	0.0	552
1440 min Summer	5.013	0.0	794
2160 min Summer	3.515	0.0	1128
2880 min Summer	2.738	0.0	1468
4320 min Summer	1.950	0.0	2200
5760 min Summer	1.550	0.0	2904
7200 min Summer	1.316	0.0	3640
8640 min Summer	1.162	0.0	4368
10080 min Summer	1.054	0.0	5136
15 min Winter	145.506	0.0	18

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.552	0.552	0.6	5.2	O K
60 min Winter	8.625	0.625	0.6	5.9	O K
120 min Winter	8.626	0.626	0.6	5.9	O K
180 min Winter	8.609	0.609	0.6	5.8	O K
240 min Winter	8.581	0.581	0.6	5.5	O K
360 min Winter	8.517	0.517	0.6	4.9	O K
480 min Winter	8.453	0.453	0.5	4.3	O K
600 min Winter	8.392	0.392	0.5	3.7	O K
720 min Winter	8.336	0.336	0.5	3.2	O K
960 min Winter	8.239	0.239	0.4	2.3	O K
1440 min Winter	8.104	0.104	0.4	1.0	O K
2160 min Winter	8.043	0.043	0.3	0.4	O K
2880 min Winter	8.034	0.034	0.2	0.3	O K
4320 min Winter	8.024	0.024	0.2	0.2	O K
5760 min Winter	8.019	0.019	0.1	0.2	O K
7200 min Winter	8.016	0.016	0.1	0.2	O K
8640 min Winter	8.015	0.015	0.1	0.1	O K
10080 min Winter	8.013	0.013	0.1	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	95.775	0.0	31
60 min Winter	59.788	0.0	60
120 min Winter	35.743	0.0	96
180 min Winter	26.492	0.0	136
240 min Winter	21.383	0.0	174
360 min Winter	15.710	0.0	248
480 min Winter	12.547	0.0	318
600 min Winter	10.493	0.0	386
720 min Winter	9.040	0.0	454
960 min Winter	7.102	0.0	580
1440 min Winter	5.013	0.0	810
2160 min Winter	3.515	0.0	1100
2880 min Winter	2.738	0.0	1468
4320 min Winter	1.950	0.0	2192
5760 min Winter	1.550	0.0	2872
7200 min Winter	1.316	0.0	3728
8640 min Winter	1.162	0.0	4376
10080 min Winter	1.054	0.0	5072

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 435421 237092 SP 35421 37092
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.015

Time (mins) From:	To:	Area (ha)
0	4	0.015

Model Details

Storage is Online Cover Level (m) 10.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.24120	Trench Width (m)	2.0
Infiltration Coefficient Side (m/hr)	0.24120	Trench Length (m)	5.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	0.800
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.800

PLOT 17 SOAKAWAY DESIGN

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 109 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.419	0.419	0.6	5.0	O K
30 min Summer	8.525	0.525	0.7	6.2	O K
60 min Summer	8.593	0.593	0.7	7.0	O K
120 min Summer	8.598	0.598	0.7	7.1	O K
180 min Summer	8.588	0.588	0.7	7.0	O K
240 min Summer	8.570	0.570	0.7	6.8	O K
360 min Summer	8.529	0.529	0.7	6.3	O K
480 min Summer	8.484	0.484	0.7	5.8	O K
600 min Summer	8.441	0.441	0.6	5.2	O K
720 min Summer	8.399	0.399	0.6	4.7	O K
960 min Summer	8.322	0.322	0.6	3.8	O K
1440 min Summer	8.203	0.203	0.5	2.4	O K
2160 min Summer	8.094	0.094	0.5	1.1	O K
2880 min Summer	8.050	0.050	0.4	0.6	O K
4320 min Summer	8.036	0.036	0.3	0.4	O K
5760 min Summer	8.029	0.029	0.3	0.3	O K
7200 min Summer	8.024	0.024	0.2	0.3	O K
8640 min Summer	8.022	0.022	0.2	0.3	O K
10080 min Summer	8.020	0.020	0.2	0.2	O K
15 min Winter	8.473	0.473	0.7	5.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	145.506	0.0	18
30 min Summer	95.775	0.0	32
60 min Summer	59.788	0.0	60
120 min Summer	35.743	0.0	96
180 min Summer	26.492	0.0	128
240 min Summer	21.383	0.0	164
360 min Summer	15.710	0.0	232
480 min Summer	12.547	0.0	300
600 min Summer	10.493	0.0	368
720 min Summer	9.040	0.0	434
960 min Summer	7.102	0.0	560
1440 min Summer	5.013	0.0	806
2160 min Summer	3.515	0.0	1144
2880 min Summer	2.738	0.0	1468
4320 min Summer	1.950	0.0	2200
5760 min Summer	1.550	0.0	2936
7200 min Summer	1.316	0.0	3608
8640 min Summer	1.162	0.0	4352
10080 min Summer	1.054	0.0	5088
15 min Winter	145.506	0.0	18

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.596	0.596	0.7	7.1	O K
60 min Winter	8.680	0.680	0.8	8.1	O K
120 min Winter	8.687	0.687	0.8	8.2	O K
180 min Winter	8.674	0.674	0.8	8.0	O K
240 min Winter	8.649	0.649	0.7	7.7	O K
360 min Winter	8.585	0.585	0.7	7.0	O K
480 min Winter	8.519	0.519	0.7	6.2	O K
600 min Winter	8.456	0.456	0.6	5.4	O K
720 min Winter	8.396	0.396	0.6	4.7	O K
960 min Winter	8.292	0.292	0.6	3.5	O K
1440 min Winter	8.139	0.139	0.5	1.6	O K
2160 min Winter	8.047	0.047	0.4	0.6	O K
2880 min Winter	8.036	0.036	0.3	0.4	O K
4320 min Winter	8.026	0.026	0.2	0.3	O K
5760 min Winter	8.021	0.021	0.2	0.2	O K
7200 min Winter	8.018	0.018	0.2	0.2	O K
8640 min Winter	8.016	0.016	0.1	0.2	O K
10080 min Winter	8.014	0.014	0.1	0.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	95.775	0.0	32
60 min Winter	59.788	0.0	60
120 min Winter	35.743	0.0	100
180 min Winter	26.492	0.0	138
240 min Winter	21.383	0.0	176
360 min Winter	15.710	0.0	252
480 min Winter	12.547	0.0	324
600 min Winter	10.493	0.0	392
720 min Winter	9.040	0.0	462
960 min Winter	7.102	0.0	588
1440 min Winter	5.013	0.0	824
2160 min Winter	3.515	0.0	1104
2880 min Winter	2.738	0.0	1468
4320 min Winter	1.950	0.0	2196
5760 min Winter	1.550	0.0	2896
7200 min Winter	1.316	0.0	3568
8640 min Winter	1.162	0.0	4344
10080 min Winter	1.054	0.0	5152

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 435421 237092 SP 35421 37092
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.020

Time (mins) From:	To:	Area (ha)
0	4	0.020

Model Details

Storage is Online Cover Level (m) 10.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.24120	Trench Width (m)	2.5
Infiltration Coefficient Side (m/hr)	0.24120	Trench Length (m)	5.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	0.800
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.800

PLOT 18 SOAKAWAY DESIGN

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 117 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.464	0.464	0.7	5.5	O K
30 min Summer	8.582	0.582	0.7	6.9	O K
60 min Summer	8.662	0.662	0.8	7.9	O K
120 min Summer	8.671	0.671	0.8	8.0	O K
180 min Summer	8.662	0.662	0.8	7.9	O K
240 min Summer	8.645	0.645	0.7	7.7	O K
360 min Summer	8.602	0.602	0.7	7.1	O K
480 min Summer	8.555	0.555	0.7	6.6	O K
600 min Summer	8.509	0.509	0.7	6.0	O K
720 min Summer	8.465	0.465	0.7	5.5	O K
960 min Summer	8.383	0.383	0.6	4.5	O K
1440 min Summer	8.253	0.253	0.5	3.0	O K
2160 min Summer	8.127	0.127	0.5	1.5	O K
2880 min Summer	8.062	0.062	0.5	0.7	O K
4320 min Summer	8.039	0.039	0.3	0.5	O K
5760 min Summer	8.031	0.031	0.3	0.4	O K
7200 min Summer	8.027	0.027	0.2	0.3	O K
8640 min Summer	8.024	0.024	0.2	0.3	O K
10080 min Summer	8.022	0.022	0.2	0.3	O K
15 min Winter	8.523	0.523	0.7	6.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	145.506	0.0	18
30 min Summer	95.775	0.0	32
60 min Summer	59.788	0.0	60
120 min Summer	35.743	0.0	98
180 min Summer	26.492	0.0	130
240 min Summer	21.383	0.0	164
360 min Summer	15.710	0.0	234
480 min Summer	12.547	0.0	302
600 min Summer	10.493	0.0	368
720 min Summer	9.040	0.0	434
960 min Summer	7.102	0.0	566
1440 min Summer	5.013	0.0	808
2160 min Summer	3.515	0.0	1164
2880 min Summer	2.738	0.0	1476
4320 min Summer	1.950	0.0	2200
5760 min Summer	1.550	0.0	2936
7200 min Summer	1.316	0.0	3608
8640 min Summer	1.162	0.0	4352
10080 min Summer	1.054	0.0	5128
15 min Winter	145.506	0.0	18

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.660	0.660	0.8	7.8	O K
60 min Winter	8.758	0.758	0.8	9.0	O K
120 min Winter	8.771	0.771	0.8	9.2	O K
180 min Winter	8.760	0.760	0.8	9.0	O K
240 min Winter	8.735	0.735	0.8	8.7	O K
360 min Winter	8.670	0.670	0.8	8.0	O K
480 min Winter	8.601	0.601	0.7	7.1	O K
600 min Winter	8.534	0.534	0.7	6.3	O K
720 min Winter	8.471	0.471	0.7	5.6	O K
960 min Winter	8.359	0.359	0.6	4.3	O K
1440 min Winter	8.190	0.190	0.5	2.3	O K
2160 min Winter	8.053	0.053	0.4	0.6	O K
2880 min Winter	8.040	0.040	0.4	0.5	O K
4320 min Winter	8.029	0.029	0.3	0.3	O K
5760 min Winter	8.023	0.023	0.2	0.3	O K
7200 min Winter	8.019	0.019	0.2	0.2	O K
8640 min Winter	8.017	0.017	0.2	0.2	O K
10080 min Winter	8.016	0.016	0.1	0.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	95.775	0.0	32
60 min Winter	59.788	0.0	60
120 min Winter	35.743	0.0	110
180 min Winter	26.492	0.0	138
240 min Winter	21.383	0.0	178
360 min Winter	15.710	0.0	254
480 min Winter	12.547	0.0	326
600 min Winter	10.493	0.0	396
720 min Winter	9.040	0.0	464
960 min Winter	7.102	0.0	596
1440 min Winter	5.013	0.0	838
2160 min Winter	3.515	0.0	1124
2880 min Winter	2.738	0.0	1468
4320 min Winter	1.950	0.0	2200
5760 min Winter	1.550	0.0	2936
7200 min Winter	1.316	0.0	3536
8640 min Winter	1.162	0.0	4488
10080 min Winter	1.054	0.0	5008

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 435421 237092 SP 35421 37092
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.022

Time (mins) From:	To:	Area (ha)
0	4	0.022

Model Details

Storage is Online Cover Level (m) 10.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.24120	Trench Width (m)	2.5
Infiltration Coefficient Side (m/hr)	0.24120	Trench Length (m)	5.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	0.800
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.800

PLOT 19 SOAKAWAY DESIGN

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 109 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.419	0.419	0.6	5.0	O K
30 min Summer	8.525	0.525	0.7	6.2	O K
60 min Summer	8.593	0.593	0.7	7.0	O K
120 min Summer	8.598	0.598	0.7	7.1	O K
180 min Summer	8.588	0.588	0.7	7.0	O K
240 min Summer	8.570	0.570	0.7	6.8	O K
360 min Summer	8.529	0.529	0.7	6.3	O K
480 min Summer	8.484	0.484	0.7	5.8	O K
600 min Summer	8.441	0.441	0.6	5.2	O K
720 min Summer	8.399	0.399	0.6	4.7	O K
960 min Summer	8.322	0.322	0.6	3.8	O K
1440 min Summer	8.203	0.203	0.5	2.4	O K
2160 min Summer	8.094	0.094	0.5	1.1	O K
2880 min Summer	8.050	0.050	0.4	0.6	O K
4320 min Summer	8.036	0.036	0.3	0.4	O K
5760 min Summer	8.029	0.029	0.3	0.3	O K
7200 min Summer	8.024	0.024	0.2	0.3	O K
8640 min Summer	8.022	0.022	0.2	0.3	O K
10080 min Summer	8.020	0.020	0.2	0.2	O K
15 min Winter	8.473	0.473	0.7	5.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	145.506	0.0	18
30 min Summer	95.775	0.0	32
60 min Summer	59.788	0.0	60
120 min Summer	35.743	0.0	96
180 min Summer	26.492	0.0	128
240 min Summer	21.383	0.0	164
360 min Summer	15.710	0.0	232
480 min Summer	12.547	0.0	300
600 min Summer	10.493	0.0	368
720 min Summer	9.040	0.0	434
960 min Summer	7.102	0.0	560
1440 min Summer	5.013	0.0	806
2160 min Summer	3.515	0.0	1144
2880 min Summer	2.738	0.0	1468
4320 min Summer	1.950	0.0	2200
5760 min Summer	1.550	0.0	2936
7200 min Summer	1.316	0.0	3608
8640 min Summer	1.162	0.0	4352
10080 min Summer	1.054	0.0	5088
15 min Winter	145.506	0.0	18

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.596	0.596	0.7	7.1	O K
60 min Winter	8.680	0.680	0.8	8.1	O K
120 min Winter	8.687	0.687	0.8	8.2	O K
180 min Winter	8.674	0.674	0.8	8.0	O K
240 min Winter	8.649	0.649	0.7	7.7	O K
360 min Winter	8.585	0.585	0.7	7.0	O K
480 min Winter	8.519	0.519	0.7	6.2	O K
600 min Winter	8.456	0.456	0.6	5.4	O K
720 min Winter	8.396	0.396	0.6	4.7	O K
960 min Winter	8.292	0.292	0.6	3.5	O K
1440 min Winter	8.139	0.139	0.5	1.6	O K
2160 min Winter	8.047	0.047	0.4	0.6	O K
2880 min Winter	8.036	0.036	0.3	0.4	O K
4320 min Winter	8.026	0.026	0.2	0.3	O K
5760 min Winter	8.021	0.021	0.2	0.2	O K
7200 min Winter	8.018	0.018	0.2	0.2	O K
8640 min Winter	8.016	0.016	0.1	0.2	O K
10080 min Winter	8.014	0.014	0.1	0.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	95.775	0.0	32
60 min Winter	59.788	0.0	60
120 min Winter	35.743	0.0	100
180 min Winter	26.492	0.0	138
240 min Winter	21.383	0.0	176
360 min Winter	15.710	0.0	252
480 min Winter	12.547	0.0	324
600 min Winter	10.493	0.0	392
720 min Winter	9.040	0.0	462
960 min Winter	7.102	0.0	588
1440 min Winter	5.013	0.0	824
2160 min Winter	3.515	0.0	1104
2880 min Winter	2.738	0.0	1468
4320 min Winter	1.950	0.0	2196
5760 min Winter	1.550	0.0	2896
7200 min Winter	1.316	0.0	3568
8640 min Winter	1.162	0.0	4344
10080 min Winter	1.054	0.0	5152

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 435421 237092 SP 35421 37092
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.020

Time (mins) From:	To:	Area (ha)
0	4	0.020

Model Details

Storage is Online Cover Level (m) 10.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.24120	Trench Width (m)	2.5
Infiltration Coefficient Side (m/hr)	0.24120	Trench Length (m)	5.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	0.800
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.800

PLOT 20 SOAKAWAY DESIGN

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 86 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.462	0.462	0.3	2.0	O K
30 min Summer	8.574	0.574	0.3	2.5	O K
60 min Summer	8.638	0.638	0.3	2.7	O K
120 min Summer	8.641	0.641	0.3	2.7	O K
180 min Summer	8.628	0.628	0.3	2.7	O K
240 min Summer	8.607	0.607	0.3	2.6	O K
360 min Summer	8.558	0.558	0.3	2.4	O K
480 min Summer	8.508	0.508	0.3	2.2	O K
600 min Summer	8.461	0.461	0.3	2.0	O K
720 min Summer	8.417	0.417	0.3	1.8	O K
960 min Summer	8.339	0.339	0.3	1.5	O K
1440 min Summer	8.222	0.222	0.2	0.9	O K
2160 min Summer	8.112	0.112	0.2	0.5	O K
2880 min Summer	8.058	0.058	0.2	0.2	O K
4320 min Summer	8.038	0.038	0.1	0.2	O K
5760 min Summer	8.031	0.031	0.1	0.1	O K
7200 min Summer	8.026	0.026	0.1	0.1	O K
8640 min Summer	8.023	0.023	0.1	0.1	O K
10080 min Summer	8.021	0.021	0.1	0.1	O K
15 min Winter	8.521	0.521	0.3	2.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	145.506	0.0	18
30 min Summer	95.775	0.0	32
60 min Summer	59.788	0.0	60
120 min Summer	35.743	0.0	90
180 min Summer	26.492	0.0	124
240 min Summer	21.383	0.0	158
360 min Summer	15.710	0.0	228
480 min Summer	12.547	0.0	294
600 min Summer	10.493	0.0	360
720 min Summer	9.040	0.0	426
960 min Summer	7.102	0.0	550
1440 min Summer	5.013	0.0	794
2160 min Summer	3.515	0.0	1148
2880 min Summer	2.738	0.0	1472
4320 min Summer	1.950	0.0	2200
5760 min Summer	1.550	0.0	2920
7200 min Summer	1.316	0.0	3656
8640 min Summer	1.162	0.0	4392
10080 min Summer	1.054	0.0	5136
15 min Winter	145.506	0.0	18

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.651	0.651	0.3	2.8	O K
60 min Winter	8.732	0.732	0.4	3.1	O K
120 min Winter	8.732	0.732	0.4	3.1	O K
180 min Winter	8.711	0.711	0.4	3.0	O K
240 min Winter	8.678	0.678	0.4	2.9	O K
360 min Winter	8.604	0.604	0.3	2.6	O K
480 min Winter	8.532	0.532	0.3	2.3	O K
600 min Winter	8.466	0.466	0.3	2.0	O K
720 min Winter	8.406	0.406	0.3	1.7	O K
960 min Winter	8.304	0.304	0.2	1.3	O K
1440 min Winter	8.159	0.159	0.2	0.7	O K
2160 min Winter	8.050	0.050	0.2	0.2	O K
2880 min Winter	8.039	0.039	0.1	0.2	O K
4320 min Winter	8.028	0.028	0.1	0.1	O K
5760 min Winter	8.022	0.022	0.1	0.1	O K
7200 min Winter	8.019	0.019	0.1	0.1	O K
8640 min Winter	8.017	0.017	0.1	0.1	O K
10080 min Winter	8.015	0.015	0.1	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	95.775	0.0	31
60 min Winter	59.788	0.0	58
120 min Winter	35.743	0.0	94
180 min Winter	26.492	0.0	132
240 min Winter	21.383	0.0	170
360 min Winter	15.710	0.0	244
480 min Winter	12.547	0.0	314
600 min Winter	10.493	0.0	382
720 min Winter	9.040	0.0	448
960 min Winter	7.102	0.0	578
1440 min Winter	5.013	0.0	822
2160 min Winter	3.515	0.0	1104
2880 min Winter	2.738	0.0	1472
4320 min Winter	1.950	0.0	2200
5760 min Winter	1.550	0.0	2896
7200 min Winter	1.316	0.0	3544
8640 min Winter	1.162	0.0	4264
10080 min Winter	1.054	0.0	5216

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 435421 237092 SP 35421 37092
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.008

Time (mins) From:	To:	Area (ha)
0	4	0.008

Model Details

Storage is Online Cover Level (m) 10.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.24120	Trench Width (m)	1.5
Infiltration Coefficient Side (m/hr)	0.24120	Trench Length (m)	3.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	0.800
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.800

PLOT 21 SOAKAWAY DESIGN

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 103 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.459	0.459	0.5	3.5	O K
30 min Summer	8.573	0.573	0.5	4.4	O K
60 min Summer	8.646	0.646	0.5	4.9	O K
120 min Summer	8.651	0.651	0.5	4.9	O K
180 min Summer	8.641	0.641	0.5	4.9	O K
240 min Summer	8.622	0.622	0.5	4.7	O K
360 min Summer	8.577	0.577	0.5	4.4	O K
480 min Summer	8.529	0.529	0.5	4.0	O K
600 min Summer	8.483	0.483	0.5	3.7	O K
720 min Summer	8.439	0.439	0.4	3.3	O K
960 min Summer	8.359	0.359	0.4	2.7	O K
1440 min Summer	8.235	0.235	0.4	1.8	O K
2160 min Summer	8.118	0.118	0.3	0.9	O K
2880 min Summer	8.059	0.059	0.3	0.4	O K
4320 min Summer	8.039	0.039	0.2	0.3	O K
5760 min Summer	8.031	0.031	0.2	0.2	O K
7200 min Summer	8.026	0.026	0.2	0.2	O K
8640 min Summer	8.023	0.023	0.1	0.2	O K
10080 min Summer	8.021	0.021	0.1	0.2	O K
15 min Winter	8.517	0.517	0.5	3.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	145.506	0.0	18
30 min Summer	95.775	0.0	32
60 min Summer	59.788	0.0	60
120 min Summer	35.743	0.0	94
180 min Summer	26.492	0.0	128
240 min Summer	21.383	0.0	162
360 min Summer	15.710	0.0	232
480 min Summer	12.547	0.0	300
600 min Summer	10.493	0.0	366
720 min Summer	9.040	0.0	432
960 min Summer	7.102	0.0	558
1440 min Summer	5.013	0.0	806
2160 min Summer	3.515	0.0	1148
2880 min Summer	2.738	0.0	1472
4320 min Summer	1.950	0.0	2188
5760 min Summer	1.550	0.0	2936
7200 min Summer	1.316	0.0	3616
8640 min Summer	1.162	0.0	4336
10080 min Summer	1.054	0.0	5048
15 min Winter	145.506	0.0	18

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.650	0.650	0.5	4.9	O K
60 min Winter	8.740	0.740	0.6	5.6	O K
120 min Winter	8.747	0.747	0.6	5.7	O K
180 min Winter	8.732	0.732	0.6	5.6	O K
240 min Winter	8.704	0.704	0.6	5.3	O K
360 min Winter	8.635	0.635	0.5	4.8	O K
480 min Winter	8.565	0.565	0.5	4.3	O K
600 min Winter	8.498	0.498	0.5	3.8	O K
720 min Winter	8.437	0.437	0.4	3.3	O K
960 min Winter	8.329	0.329	0.4	2.5	O K
1440 min Winter	8.172	0.172	0.3	1.3	O K
2160 min Winter	8.050	0.050	0.3	0.4	O K
2880 min Winter	8.039	0.039	0.2	0.3	O K
4320 min Winter	8.028	0.028	0.2	0.2	O K
5760 min Winter	8.022	0.022	0.1	0.2	O K
7200 min Winter	8.019	0.019	0.1	0.1	O K
8640 min Winter	8.017	0.017	0.1	0.1	O K
10080 min Winter	8.015	0.015	0.1	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	95.775	0.0	32
60 min Winter	59.788	0.0	60
120 min Winter	35.743	0.0	98
180 min Winter	26.492	0.0	136
240 min Winter	21.383	0.0	174
360 min Winter	15.710	0.0	250
480 min Winter	12.547	0.0	320
600 min Winter	10.493	0.0	390
720 min Winter	9.040	0.0	456
960 min Winter	7.102	0.0	588
1440 min Winter	5.013	0.0	834
2160 min Winter	3.515	0.0	1104
2880 min Winter	2.738	0.0	1472
4320 min Winter	1.950	0.0	2184
5760 min Winter	1.550	0.0	2912
7200 min Winter	1.316	0.0	3616
8640 min Winter	1.162	0.0	4272
10080 min Winter	1.054	0.0	5048

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 435421 237092 SP 35421 37092
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.014

Time (mins) From:	To:	Area (ha)
0	4	0.014

Model Details

Storage is Online Cover Level (m) 10.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.24120	Trench Width (m)	2.0
Infiltration Coefficient Side (m/hr)	0.24120	Trench Length (m)	4.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	0.800
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.800

PLOT 22 SOAKAWAY DESIGN

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 84 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.401	0.401	0.3	1.7	O K
30 min Summer	8.496	0.496	0.3	2.1	O K
60 min Summer	8.548	0.548	0.3	2.3	O K
120 min Summer	8.547	0.547	0.3	2.3	O K
180 min Summer	8.533	0.533	0.3	2.3	O K
240 min Summer	8.512	0.512	0.3	2.2	O K
360 min Summer	8.467	0.467	0.3	2.0	O K
480 min Summer	8.421	0.421	0.3	1.8	O K
600 min Summer	8.378	0.378	0.3	1.6	O K
720 min Summer	8.338	0.338	0.3	1.4	O K
960 min Summer	8.267	0.267	0.2	1.1	O K
1440 min Summer	8.164	0.164	0.2	0.7	O K
2160 min Summer	8.076	0.076	0.2	0.3	O K
2880 min Summer	8.047	0.047	0.2	0.2	O K
4320 min Summer	8.034	0.034	0.1	0.1	O K
5760 min Summer	8.027	0.027	0.1	0.1	O K
7200 min Summer	8.023	0.023	0.1	0.1	O K
8640 min Summer	8.020	0.020	0.1	0.1	O K
10080 min Summer	8.018	0.018	0.1	0.1	O K
15 min Winter	8.453	0.453	0.3	1.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	145.506	0.0	18
30 min Summer	95.775	0.0	31
60 min Summer	59.788	0.0	56
120 min Summer	35.743	0.0	88
180 min Summer	26.492	0.0	122
240 min Summer	21.383	0.0	158
360 min Summer	15.710	0.0	226
480 min Summer	12.547	0.0	292
600 min Summer	10.493	0.0	358
720 min Summer	9.040	0.0	422
960 min Summer	7.102	0.0	548
1440 min Summer	5.013	0.0	792
2160 min Summer	3.515	0.0	1128
2880 min Summer	2.738	0.0	1468
4320 min Summer	1.950	0.0	2200
5760 min Summer	1.550	0.0	2880
7200 min Summer	1.316	0.0	3672
8640 min Summer	1.162	0.0	4336
10080 min Summer	1.054	0.0	5128
15 min Winter	145.506	0.0	17

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.564	0.564	0.3	2.4	O K
60 min Winter	8.629	0.629	0.3	2.7	O K
120 min Winter	8.625	0.625	0.3	2.7	O K
180 min Winter	8.602	0.602	0.3	2.6	O K
240 min Winter	8.571	0.571	0.3	2.4	O K
360 min Winter	8.501	0.501	0.3	2.1	O K
480 min Winter	8.435	0.435	0.3	1.9	O K
600 min Winter	8.374	0.374	0.3	1.6	O K
720 min Winter	8.320	0.320	0.2	1.4	O K
960 min Winter	8.228	0.228	0.2	1.0	O K
1440 min Winter	8.103	0.103	0.2	0.4	O K
2160 min Winter	8.044	0.044	0.1	0.2	O K
2880 min Winter	8.034	0.034	0.1	0.1	O K
4320 min Winter	8.024	0.024	0.1	0.1	O K
5760 min Winter	8.019	0.019	0.1	0.1	O K
7200 min Winter	8.017	0.017	0.1	0.1	O K
8640 min Winter	8.015	0.015	0.0	0.1	O K
10080 min Winter	8.013	0.013	0.0	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	95.775	0.0	31
60 min Winter	59.788	0.0	58
120 min Winter	35.743	0.0	94
180 min Winter	26.492	0.0	132
240 min Winter	21.383	0.0	170
360 min Winter	15.710	0.0	242
480 min Winter	12.547	0.0	312
600 min Winter	10.493	0.0	380
720 min Winter	9.040	0.0	446
960 min Winter	7.102	0.0	570
1440 min Winter	5.013	0.0	808
2160 min Winter	3.515	0.0	1100
2880 min Winter	2.738	0.0	1448
4320 min Winter	1.950	0.0	2204
5760 min Winter	1.550	0.0	2936
7200 min Winter	1.316	0.0	3624
8640 min Winter	1.162	0.0	4352
10080 min Winter	1.054	0.0	5048

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 435421 237092 SP 35421 37092
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.007

Time (mins) From:	To:	Area (ha)
0	4	0.007

Model Details

Storage is Online Cover Level (m) 10.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.24120	Trench Width (m)	1.5
Infiltration Coefficient Side (m/hr)	0.24120	Trench Length (m)	3.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	0.800
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.800

PLOT 23 SOAKAWAY DESIGN

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 84 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.401	0.401	0.3	1.7	O K
30 min Summer	8.496	0.496	0.3	2.1	O K
60 min Summer	8.548	0.548	0.3	2.3	O K
120 min Summer	8.547	0.547	0.3	2.3	O K
180 min Summer	8.533	0.533	0.3	2.3	O K
240 min Summer	8.512	0.512	0.3	2.2	O K
360 min Summer	8.467	0.467	0.3	2.0	O K
480 min Summer	8.421	0.421	0.3	1.8	O K
600 min Summer	8.378	0.378	0.3	1.6	O K
720 min Summer	8.338	0.338	0.3	1.4	O K
960 min Summer	8.267	0.267	0.2	1.1	O K
1440 min Summer	8.164	0.164	0.2	0.7	O K
2160 min Summer	8.076	0.076	0.2	0.3	O K
2880 min Summer	8.047	0.047	0.2	0.2	O K
4320 min Summer	8.034	0.034	0.1	0.1	O K
5760 min Summer	8.027	0.027	0.1	0.1	O K
7200 min Summer	8.023	0.023	0.1	0.1	O K
8640 min Summer	8.020	0.020	0.1	0.1	O K
10080 min Summer	8.018	0.018	0.1	0.1	O K
15 min Winter	8.453	0.453	0.3	1.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	145.506	0.0	18
30 min Summer	95.775	0.0	31
60 min Summer	59.788	0.0	56
120 min Summer	35.743	0.0	88
180 min Summer	26.492	0.0	122
240 min Summer	21.383	0.0	158
360 min Summer	15.710	0.0	226
480 min Summer	12.547	0.0	292
600 min Summer	10.493	0.0	358
720 min Summer	9.040	0.0	422
960 min Summer	7.102	0.0	548
1440 min Summer	5.013	0.0	792
2160 min Summer	3.515	0.0	1128
2880 min Summer	2.738	0.0	1468
4320 min Summer	1.950	0.0	2200
5760 min Summer	1.550	0.0	2880
7200 min Summer	1.316	0.0	3672
8640 min Summer	1.162	0.0	4336
10080 min Summer	1.054	0.0	5128
15 min Winter	145.506	0.0	17

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.564	0.564	0.3	2.4	O K
60 min Winter	8.629	0.629	0.3	2.7	O K
120 min Winter	8.625	0.625	0.3	2.7	O K
180 min Winter	8.602	0.602	0.3	2.6	O K
240 min Winter	8.571	0.571	0.3	2.4	O K
360 min Winter	8.501	0.501	0.3	2.1	O K
480 min Winter	8.435	0.435	0.3	1.9	O K
600 min Winter	8.374	0.374	0.3	1.6	O K
720 min Winter	8.320	0.320	0.2	1.4	O K
960 min Winter	8.228	0.228	0.2	1.0	O K
1440 min Winter	8.103	0.103	0.2	0.4	O K
2160 min Winter	8.044	0.044	0.1	0.2	O K
2880 min Winter	8.034	0.034	0.1	0.1	O K
4320 min Winter	8.024	0.024	0.1	0.1	O K
5760 min Winter	8.019	0.019	0.1	0.1	O K
7200 min Winter	8.017	0.017	0.1	0.1	O K
8640 min Winter	8.015	0.015	0.0	0.1	O K
10080 min Winter	8.013	0.013	0.0	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	95.775	0.0	31
60 min Winter	59.788	0.0	58
120 min Winter	35.743	0.0	94
180 min Winter	26.492	0.0	132
240 min Winter	21.383	0.0	170
360 min Winter	15.710	0.0	242
480 min Winter	12.547	0.0	312
600 min Winter	10.493	0.0	380
720 min Winter	9.040	0.0	446
960 min Winter	7.102	0.0	570
1440 min Winter	5.013	0.0	808
2160 min Winter	3.515	0.0	1100
2880 min Winter	2.738	0.0	1448
4320 min Winter	1.950	0.0	2204
5760 min Winter	1.550	0.0	2936
7200 min Winter	1.316	0.0	3624
8640 min Winter	1.162	0.0	4352
10080 min Winter	1.054	0.0	5048

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 435421 237092 SP 35421 37092
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.007

Time (mins) From:	To:	Area (ha)
0	4	0.007

Model Details

Storage is Online Cover Level (m) 10.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.24120	Trench Width (m)	1.5
Infiltration Coefficient Side (m/hr)	0.24120	Trench Length (m)	3.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	0.800
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.800

PLOT 24 SOAKAWAY DESIGN

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 101 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.418	0.418	0.5	4.0	O K
30 min Summer	8.522	0.522	0.6	5.0	O K
60 min Summer	8.586	0.586	0.6	5.6	O K
120 min Summer	8.589	0.589	0.6	5.6	O K
180 min Summer	8.578	0.578	0.6	5.5	O K
240 min Summer	8.560	0.560	0.6	5.3	O K
360 min Summer	8.517	0.517	0.6	4.9	O K
480 min Summer	8.472	0.472	0.6	4.5	O K
600 min Summer	8.428	0.428	0.5	4.1	O K
720 min Summer	8.386	0.386	0.5	3.7	O K
960 min Summer	8.311	0.311	0.5	3.0	O K
1440 min Summer	8.195	0.195	0.4	1.9	O K
2160 min Summer	8.091	0.091	0.4	0.9	O K
2880 min Summer	8.049	0.049	0.4	0.5	O K
4320 min Summer	8.036	0.036	0.3	0.3	O K
5760 min Summer	8.028	0.028	0.2	0.3	O K
7200 min Summer	8.024	0.024	0.2	0.2	O K
8640 min Summer	8.021	0.021	0.2	0.2	O K
10080 min Summer	8.019	0.019	0.1	0.2	O K
15 min Winter	8.472	0.472	0.6	4.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	145.506	0.0	18
30 min Summer	95.775	0.0	32
60 min Summer	59.788	0.0	60
120 min Summer	35.743	0.0	94
180 min Summer	26.492	0.0	126
240 min Summer	21.383	0.0	162
360 min Summer	15.710	0.0	230
480 min Summer	12.547	0.0	298
600 min Summer	10.493	0.0	364
720 min Summer	9.040	0.0	430
960 min Summer	7.102	0.0	558
1440 min Summer	5.013	0.0	796
2160 min Summer	3.515	0.0	1144
2880 min Summer	2.738	0.0	1468
4320 min Summer	1.950	0.0	2200
5760 min Summer	1.550	0.0	2936
7200 min Summer	1.316	0.0	3608
8640 min Summer	1.162	0.0	4352
10080 min Summer	1.054	0.0	5096
15 min Winter	145.506	0.0	18

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.592	0.592	0.6	5.6	O K
60 min Winter	8.672	0.672	0.7	6.4	O K
120 min Winter	8.676	0.676	0.7	6.4	O K
180 min Winter	8.661	0.661	0.6	6.3	O K
240 min Winter	8.633	0.633	0.6	6.0	O K
360 min Winter	8.568	0.568	0.6	5.4	O K
480 min Winter	8.501	0.501	0.6	4.8	O K
600 min Winter	8.438	0.438	0.5	4.2	O K
720 min Winter	8.380	0.380	0.5	3.6	O K
960 min Winter	8.278	0.278	0.5	2.6	O K
1440 min Winter	8.132	0.132	0.4	1.3	O K
2160 min Winter	8.046	0.046	0.3	0.4	O K
2880 min Winter	8.036	0.036	0.3	0.3	O K
4320 min Winter	8.026	0.026	0.2	0.2	O K
5760 min Winter	8.021	0.021	0.1	0.2	O K
7200 min Winter	8.018	0.018	0.1	0.2	O K
8640 min Winter	8.015	0.015	0.1	0.1	O K
10080 min Winter	8.014	0.014	0.1	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	95.775	0.0	32
60 min Winter	59.788	0.0	60
120 min Winter	35.743	0.0	98
180 min Winter	26.492	0.0	136
240 min Winter	21.383	0.0	174
360 min Winter	15.710	0.0	248
480 min Winter	12.547	0.0	320
600 min Winter	10.493	0.0	390
720 min Winter	9.040	0.0	456
960 min Winter	7.102	0.0	586
1440 min Winter	5.013	0.0	822
2160 min Winter	3.515	0.0	1100
2880 min Winter	2.738	0.0	1460
4320 min Winter	1.950	0.0	2168
5760 min Winter	1.550	0.0	2928
7200 min Winter	1.316	0.0	3656
8640 min Winter	1.162	0.0	4408
10080 min Winter	1.054	0.0	5136

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 435421 237092 SP 35421 37092
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.016

Time (mins) From:	To:	Area (ha)
0	4	0.016

Model Details

Storage is Online Cover Level (m) 10.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.24120	Trench Width (m)	2.0
Infiltration Coefficient Side (m/hr)	0.24120	Trench Length (m)	5.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	0.800
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.800

PLOT 25 SOAKAWAY DESIGN

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 96 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.390	0.390	0.5	3.7	O K
30 min Summer	8.486	0.486	0.6	4.6	O K
60 min Summer	8.544	0.544	0.6	5.2	O K
120 min Summer	8.545	0.545	0.6	5.2	O K
180 min Summer	8.533	0.533	0.6	5.1	O K
240 min Summer	8.515	0.515	0.6	4.9	O K
360 min Summer	8.473	0.473	0.6	4.5	O K
480 min Summer	8.429	0.429	0.5	4.1	O K
600 min Summer	8.387	0.387	0.5	3.7	O K
720 min Summer	8.347	0.347	0.5	3.3	O K
960 min Summer	8.275	0.275	0.5	2.6	O K
1440 min Summer	8.167	0.167	0.4	1.6	O K
2160 min Summer	8.074	0.074	0.4	0.7	O K
2880 min Summer	8.046	0.046	0.3	0.4	O K
4320 min Summer	8.033	0.033	0.2	0.3	O K
5760 min Summer	8.027	0.027	0.2	0.3	O K
7200 min Summer	8.023	0.023	0.2	0.2	O K
8640 min Summer	8.020	0.020	0.1	0.2	O K
10080 min Summer	8.018	0.018	0.1	0.2	O K
15 min Winter	8.441	0.441	0.5	4.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	145.506	0.0	18
30 min Summer	95.775	0.0	32
60 min Summer	59.788	0.0	60
120 min Summer	35.743	0.0	92
180 min Summer	26.492	0.0	126
240 min Summer	21.383	0.0	160
360 min Summer	15.710	0.0	230
480 min Summer	12.547	0.0	298
600 min Summer	10.493	0.0	362
720 min Summer	9.040	0.0	428
960 min Summer	7.102	0.0	552
1440 min Summer	5.013	0.0	794
2160 min Summer	3.515	0.0	1128
2880 min Summer	2.738	0.0	1468
4320 min Summer	1.950	0.0	2200
5760 min Summer	1.550	0.0	2904
7200 min Summer	1.316	0.0	3640
8640 min Summer	1.162	0.0	4368
10080 min Summer	1.054	0.0	5136
15 min Winter	145.506	0.0	18

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.552	0.552	0.6	5.2	O K
60 min Winter	8.625	0.625	0.6	5.9	O K
120 min Winter	8.626	0.626	0.6	5.9	O K
180 min Winter	8.609	0.609	0.6	5.8	O K
240 min Winter	8.581	0.581	0.6	5.5	O K
360 min Winter	8.517	0.517	0.6	4.9	O K
480 min Winter	8.453	0.453	0.5	4.3	O K
600 min Winter	8.392	0.392	0.5	3.7	O K
720 min Winter	8.336	0.336	0.5	3.2	O K
960 min Winter	8.239	0.239	0.4	2.3	O K
1440 min Winter	8.104	0.104	0.4	1.0	O K
2160 min Winter	8.043	0.043	0.3	0.4	O K
2880 min Winter	8.034	0.034	0.2	0.3	O K
4320 min Winter	8.024	0.024	0.2	0.2	O K
5760 min Winter	8.019	0.019	0.1	0.2	O K
7200 min Winter	8.016	0.016	0.1	0.2	O K
8640 min Winter	8.015	0.015	0.1	0.1	O K
10080 min Winter	8.013	0.013	0.1	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	95.775	0.0	31
60 min Winter	59.788	0.0	60
120 min Winter	35.743	0.0	96
180 min Winter	26.492	0.0	136
240 min Winter	21.383	0.0	174
360 min Winter	15.710	0.0	248
480 min Winter	12.547	0.0	318
600 min Winter	10.493	0.0	386
720 min Winter	9.040	0.0	454
960 min Winter	7.102	0.0	580
1440 min Winter	5.013	0.0	810
2160 min Winter	3.515	0.0	1100
2880 min Winter	2.738	0.0	1468
4320 min Winter	1.950	0.0	2192
5760 min Winter	1.550	0.0	2872
7200 min Winter	1.316	0.0	3728
8640 min Winter	1.162	0.0	4376
10080 min Winter	1.054	0.0	5072

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 435421 237092 SP 35421 37092
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.015

Time (mins) From:	To:	Area (ha)
0	4	0.015

Model Details

Storage is Online Cover Level (m) 10.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.24120	Trench Width (m)	2.0
Infiltration Coefficient Side (m/hr)	0.24120	Trench Length (m)	5.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	0.800
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.800

DRAINED AREAS PLAN

High Rock

LAP and landscape to be completed by landscape architect.

Staggered field levels taken in transect only

TBS-E

TBS-W

S/S

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.

SDP NO. E21-077

PIPELINE REFERENCE / DRAINED AREA

1.000 - 0.032ha
1.001 - 0.056ha
1.002 - 0.030ha
1.003 - 0.033ha
1.004 - 0.033ha
1.005 - 0.008ha
2.000 - 0.075ha
3.000 - 0.013ha
1.006 - 0.015ha
4.000 - 0.062ha
5.000 - 0.029ha
4.001 - 0.056ha
4.002 - 0.015ha
6.000 - 0.030ha
1.007 - 0.063ha
1.008 - 0.000ha
1.009 - 0.000ha
1.010 - 0.000ha

ROOF AREAS INCLUDE 10% URBAN CREEP ALLOWANCE

PLOT SCALE = 1:200
0m 10m 20m

REV	DATE	DESCRIPTION	BY	CHK
P1	May 22	PLANNING ISSUE.	–	–

STATUS: TENDER

GADE HOMES

SITE: SIBFORD FERRIS BANBURY

TITLE: Surface Water Drained Areas and Pipeline Reference Plan

SDP CONSULTING ENGINEERS
Head Office, Suite 3, Salar House, Campfield Road, St.Albans, Hertfordshire, AL1 5HT
Tel. 01727 844606. Fax. 01727 830771
Email. mail@sdpce.co.uk
Southern Office, 21a Bargates, Christchurch, Dorset. BH23 1QD.
Tel. 01727 844606. Fax. 01202 490601
Email. sdpsouth@sdpce.co.uk

SCALE AT A0	DRAWN	DATE
1:200	AJV	May 22
	CHECKED	PAGED

DRAWING NO. E21-077-152.3 REV. P1