

Project:

2 VALE ROAD, NORTHFLEET

Client:

BRT PROPERTIES KENT LTD

Document Title:

DRAINAGE MODELLING CALCULATIONS

Date:

NOVEMBER 2024

Revision:

P04

Job No:

3474

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., I*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)
SS1	22.700	0.685	Open Manhole	450	S1.000	22.015	100				
SS2	22.700	1.146	Open Manhole	600	S1.001	21.554	225	S1.000	21.679	100	
SRE2.1	22.700	0.750	Open Manhole	100	S2.000	21.950	100				
SJUNCT	22.700	1.342	Junction		S1.002	21.358	225	S1.001	21.358	225	
								S2.000	21.358	100	
SS3	22.705	1.766	Open Manhole	600	S1.003	20.939	225	S1.002	20.939	225	
SRE3.1	22.553	0.882	Open Manhole	100	S3.000	21.671	100				
SJUNCT	22.703	1.774	Junction		S1.004	20.929	225	S1.003	20.929	225	
								S3.000	20.979	100	
SRE4.1	22.737	0.882	Open Manhole	100	S4.000	21.855	100				
SS4	22.654	1.818	Open Manhole	600	S1.005	20.836	225	S1.004	20.836	225	
								S4.000	20.886	100	
SRE5.1	22.659	0.550	Open Manhole	100	S5.000	22.109	100				
SS5	22.777	0.805	Open Manhole	450	S5.001	21.972	150	S5.000	22.022	100	
SS7	22.485	1.000	Open Manhole	450	S6.000	21.485	150				
SS6	22.703	2.181	Open Manhole	600	S5.002	20.740	225	S5.001	20.815	150	
								S6.000	20.522	150	
SJUNCT	22.725	2.023	Junction		S1.006	20.702	225	S1.005	20.702	225	
								S5.002	20.702	225	
SSWT11	22.609	2.400	Open Manhole	1200	S1.007	20.209	225	S1.006	20.661	225	452
SATT1	22.765	2.585	Junction		S1.008	20.180	225	S1.007	20.180	225	
SSWP12	22.880	2.712	Open Manhole	1200	S1.009	20.168	100	S1.008	20.168	225	
SS13-CP	23.296	0.751	Open Manhole	450	S1.010	22.545	100	S1.009	22.545	100	
S	23.340	0.869	Open Manhole	0		OUTFALL		S1.010	22.471	100	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SS1	-341.208	483.462	-341.208	483.462	Required	
SS2	-338.729	496.609	-338.729	496.609	Required	
SRE2.1	-345.902	504.919	-345.902	504.919	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SJUNCT	-343.545	506.113			No Entry	
SS3	-354.355	526.626	-354.355	526.626	Required	
SRE3.1	-358.306	532.002	-358.306	532.002	Required	
SJUNCT	-355.464	526.473			No Entry	
SRE4.1	-368.345	526.841	-368.345	526.841	Required	
SS4	-365.503	521.313	-365.503	521.313	Required	
SRE5.1	-355.804	488.221	-355.804	488.221	Required	
SS5	-354.584	493.287	-354.584	493.287	Required	
SS7	-368.169	500.004	-368.169	500.004	Required	
SS6	-364.603	513.315	-364.603	513.315	Required	
SJUNCT	-369.847	518.589			No Entry	
SSWT11	-375.801	524.334	-375.801	524.334	Required	
SATT1	-378.617	529.804			No Entry	
SSWP12	-368.248	535.049	-368.248	535.049	Required	
SS13-CP	-369.468	546.684	-369.468	546.684	Required	

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Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S	-367.927	548.965			No Entry	



Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.002	0.002	0.002
	User	-	100	0.003	0.003	0.005
	User	-	100	0.002	0.002	0.006
	User	-	100	0.001	0.001	0.008
1.001	User	-	100	0.002	0.002	0.002
	User	-	100	0.002	0.002	0.004
	User	-	100	0.002	0.002	0.006
2.000	User	-	100	0.002	0.002	0.002
1.002	User	-	100	0.002	0.002	0.002
	User	-	100	0.002	0.002	0.004
	User	-	100	0.003	0.003	0.007
	User	-	100	0.003	0.003	0.010
1.003	User	-	100	0.011	0.011	0.011
3.000	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.000	0.000	0.000
4.000	-	-	100	0.000	0.000	0.000
1.005	-	-	100	0.000	0.000	0.000
5.000	User	-	100	0.011	0.011	0.011
	User	-	100	0.002	0.002	0.013
5.001	User	-	100	0.004	0.004	0.004
	User	-	100	0.007	0.007	0.011
	User	-	100	0.002	0.002	0.013
6.000	User	-	100	0.025	0.025	0.025
5.002	User	-	100	0.002	0.002	0.002
1.006	User	-	100	0.004	0.004	0.004
	User	-	100	0.002	0.002	0.006
	User	-	100	0.021	0.021	0.027
1.007	-	-	100	0.000	0.000	0.000
1.008	-	-	100	0.000	0.000	0.000
1.009	-	-	100	0.000	0.000	0.000
1.010	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.116	0.116	0.116

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)
S1.010	S	23.340	22.471	0.000	0	0

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Simulation Criteria for Storm

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

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point Cv (Winter) 0.840
Return Period (years) 2 Summer Storms Yes Storm Duration (mins) 30
FEH Rainfall Version 2013 Winter Storms Yes
Site Location GB 562797 173610 TQ 62797 73610 Cv (Summer) 0.750

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<u>Online Controls for Storm</u> <u>Pump Manhole: SSWP12, DS/PN: S1.009, Volume (m³): 3.5</u> Invert Level (m) 20.168 Depth (m) Flow (l/s) 0.001 2.0000		
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Storage Structures for Storm

Cellular Storage Manhole: SATT1, DS/PN: S1.008

Invert Level (m) 20.550 Infiltration Coefficient Side (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Base (m/hr) 0.00000 Safety Factor 2.0

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	40.0	92.0	1.600	40.0	153.4	1.601	0.0	153.4

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FEH Site Location GB 562797 173610 TQ 62797 73610 Cv (Summer) 0.750
FEH Rainfall Version 2013 Data Type Point Cv (Winter) 0.840

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

Profile(s)

Summer and Winter

Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 20

					Water				Surcharged		Flooded		Half Drain		Pipe		
PN	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Level	Depth	Volume	Flow /	Overflow	Time	Flow	Level	
	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	(m)	(m)	(m³)	Cap.	(l/s)	(mins)	(l/s)	Status	Exceeded
S1.000	SS1	15 Winter	2	+0%					22.039	-0.076	0.000	0.13			1.2	OK	
S1.001	SS2	15 Winter	2	+0%					21.581	-0.198	0.000	0.03			2.0	OK	
S2.000	SRE2.1	15 Winter	2	+0%					21.957	-0.093	0.000	0.01			0.3	OK	
S1.002	SJUNCT	15 Winter	2	+0%					21.392	-0.191	0.000	0.05			3.7	OK*	
S1.003	SS3	15 Winter	2	+0%	30/120 Winter				21.003	-0.161	0.000	0.18			5.3	OK	
S3.000	SRE3.1	15 Summer	2	+0%					21.671	-0.100	0.000	0.00			0.0	OK	
S1.004	SJUNCT	15 Winter	2	+0%					20.981	-0.173	0.000	0.12			5.3	OK*	
S4.000	SRE4.1	15 Summer	2	+0%					21.855	-0.100	0.000	0.00			0.0	OK	
S1.005	SS4	15 Winter	2	+0%	30/30 Winter				20.884	-0.177	0.000	0.10			5.3	OK	
S5.000	SRE5.1	15 Winter	2	+0%	100/15 Summer				22.146	-0.063	0.000	0.29			2.0	OK	
S5.001	SS5	15 Winter	2	+0%					22.004	-0.118	0.000	0.10			3.9	OK	
S6.000	SS7	15 Winter	2	+0%	100/120 Winter				21.515	-0.120	0.000	0.09			3.9	OK	
S5.002	SS6	15 Winter	2	+0%	30/15 Summer				20.837	-0.128	0.000	0.27			8.1	OK	
S1.006	SJUNCT	15 Winter	2	+0%					20.824	-0.103	0.000	0.57			17.0	OK*	
S1.007	SSWT11	120 Winter	2	+0%	2/15 Summer				20.709	0.275	0.000	0.24			6.6	SURCHARGED	
S1.008	SATT1	120 Winter	2	+0%	2/15 Summer				20.707	0.302	0.000	0.22		51	3.3	SURCHARGED*	
S1.009	SSWP12	120 Winter	2	+0%	2/15 Summer				20.706	0.438	0.000	0.88			2.0	SURCHARGED	
S1.010	SS13-CP	240 Summer	2	+0%					22.580	-0.065	0.000	0.26			2.0	OK	

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

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

Synthetic Rainfall Details
Rainfall Model FEH Site Location GB 562797 173610 TQ 62797 73610 Cv (Summer) 0.750
FEH Rainfall Version 2013 Data Type Point Cv (Winter) 0.840
Margin for Flood Risk Warning (mm) 300.0 DTS Status ON Inertia Status ON
Analysis Timestep 2.5 Second Increment (Extended) DVD Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 20

WARNING: Half Drain Time has not been calculated as the structure is too full.

										Water	Surcharged	Flooded	Half Drain		Pipe		
PN	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Level	Depth	Volume	Flow /	Overflow	Time	Flow	Status	Level
	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	(m)	(m)	(m³)	Cap.	(l/s)	(mins)	(l/s)		Exceeded
S1.000	SS1	15 Winter	30	+0%					22.054	-0.061	0.000	0.32			2.9		OK
S1.001	SS2	15 Winter	30	+0%					21.599	-0.180	0.000	0.09			5.3		OK
S2.000	SRE2.1	15 Winter	30	+0%					21.962	-0.088	0.000	0.03			0.7		OK
S1.002	SJUNCT	15 Winter	30	+0%					21.416	-0.167	0.000	0.15			10.5		OK*
S1.003	SS3	120 Winter	30	+0%	30/120 Winter				21.176	0.012	0.000	0.16			4.7	SURCHARGED	
S3.000	SRE3.1	15 Summer	30	+0%					21.671	-0.100	0.000	0.00			0.0		OK
S1.004	SJUNCT	120 Winter	30	+0%					21.154	0.000	0.000	0.11			4.7	SURCHARGED*	
S4.000	SRE4.1	15 Summer	30	+0%					21.855	-0.100	0.000	0.00			0.0		OK
S1.005	SS4	120 Winter	30	+0%	30/30 Winter				21.175	0.114	0.000	0.09			4.7	SURCHARGED	
S5.000	SRE5.1	15 Winter	30	+0%	100/15 Summer				22.172	-0.037	0.000	0.72			4.9		OK
S5.001	SS5	15 Winter	30	+0%					22.026	-0.096	0.000	0.27			10.5		OK
S6.000	SS7	15 Winter	30	+0%	100/120 Winter				21.532	-0.103	0.000	0.22			9.5		OK
S5.002	SS6	120 Winter	30	+0%	30/15 Summer				21.176	0.211	0.000	0.23			6.8	SURCHARGED	
S1.006	SJUNCT	15 Summer	30	+0%					20.927	0.000	0.000	1.53			45.7	SURCHARGED*	
S1.007	SSWT11	120 Winter	30	+0%	2/15 Summer				21.173	0.739	0.000	0.50			13.6	SURCHARGED	
S1.008	SATT1	120 Winter	30	+0%	2/15 Summer				21.171	0.766	0.000	0.20			3.0	SURCHARGED*	
S1.009	SSWP12	120 Winter	30	+0%	2/15 Summer				21.169	0.901	0.000	0.88			2.0	SURCHARGED	
S1.010	SS13-CP	15 Summer	30	+0%					22.580	-0.065	0.000	0.26			2.0		OK

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

Simulation Criteria
Areal Reduction Factor 1.000 Hot Start Level (mm) 0 Foul Sewage per hectare (l/s) 0.000 MADD Factor * 10m³/ha Storage 2.000 Flow per Person per Day (l/per/day) 0.000
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Number of Input Hydrographs 0 Number of Online Controls 1 Number of Offline Controls 0 Number of Storage Structures 1 Number of Time/Area Diagrams 0 Number of Real Time Controls 0

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 20

WARNING: Half Drain Time has not been calculated as the structure is too full.

										Water	Surcharged	Flooded			Half Drain	Pipe		
PN	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Level	Depth	Volume	Flow /	Overflow	Time	Flow		Level	
	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	(m)	(m)	(m³)	Cap.	(l/s)	(mins)	(l/s)	Status	Exceeded	
S1.000	SS1	15 Winter	100	+20%					22.065	-0.050	0.000	0.50			4.6		OK	
S1.001	SS2	240 Winter	100	+20%					21.744	-0.035	0.000	0.03			1.7		OK	
S2.000	SRE2.1	15 Winter	100	+20%					21.965	-0.085	0.000	0.05			1.1		OK	
S1.002	SJUNCT	60 Winter	100	+20%					21.583	0.000	0.000	0.12			8.5	SURCHARGED*		
S1.003	SS3	240 Winter	100	+20%	30/120 Winter				21.743	0.579	0.000	0.14			4.2	SURCHARGED		
S3.000	SRE3.1	240 Winter	100	+20%					21.743	-0.028	0.000	0.00			0.0		OK	
S1.004	SJUNCT	15 Summer	100	+20%					21.154	0.000	0.000	0.44			18.9	SURCHARGED*		
S4.000	SRE4.1	15 Summer	100	+20%					21.855	-0.100	0.000	0.00			0.0		OK	
S1.005	SS4	240 Winter	100	+20%	30/30 Winter				21.742	0.681	0.000	0.07			3.8	SURCHARGED		
S5.000	SRE5.1	15 Winter	100	+20%	100/15 Summer				22.230	0.021	0.000	1.13			7.8	SURCHARGED		
S5.001	SS5	15 Winter	100	+20%					22.041	-0.081	0.000	0.43			16.4		OK	
S6.000	SS7	240 Winter	100	+20%	100/120 Winter				21.744	0.109	0.000	0.07			3.2	SURCHARGED		
S5.002	SS6	240 Winter	100	+20%	30/15 Summer				21.742	0.777	0.000	0.22			6.6	SURCHARGED		
S1.006	SJUNCT	15 Summer	100	+20%					20.927	0.000	0.000	2.12			63.4	SURCHARGED*		
S1.007	SSWT11	240 Winter	100	+20%	2/15 Summer				21.739	1.305	0.000	0.48			12.9	SURCHARGED		
S1.008	SATT1	240 Winter	100	+20%	2/15 Summer				21.738	1.333	0.000	0.16			2.4	SURCHARGED*		
S1.009	SSWP12	240 Winter	100	+20%	2/15 Summer				21.735	1.467	0.000	0.88			2.0	SURCHARGED		
S1.010	SS13-CP	240 Winter	100	+20%					22.580	-0.065	0.000	0.26			2.0		OK	

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., I*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)
SS1	22.700	0.685	Open Manhole	450	S1.000	22.015	100				
SS2	22.700	1.146	Open Manhole	600	S1.001	21.554	225	S1.000	21.679	100	
SRE2.1	22.700	0.750	Open Manhole	100	S2.000	21.950	100				
SJUNCT	22.700	1.342	Junction		S1.002	21.358	225	S1.001	21.358	225	
								S2.000	21.358	100	
SS3	22.705	1.766	Open Manhole	600	S1.003	20.939	225	S1.002	20.939	225	
SRE3.1	22.553	0.882	Open Manhole	100	S3.000	21.671	100				
SJUNCT	22.703	1.774	Junction		S1.004	20.929	225	S1.003	20.929	225	
								S3.000	20.979	100	
SRE4.1	22.737	0.882	Open Manhole	100	S4.000	21.855	100				
SS4	22.654	1.818	Open Manhole	600	S1.005	20.836	225	S1.004	20.836	225	
								S4.000	20.886	100	
SRE5.1	22.659	0.550	Open Manhole	100	S5.000	22.109	100				
SS5	22.777	0.805	Open Manhole	450	S5.001	21.972	150	S5.000	22.022	100	
SS7	22.485	1.000	Open Manhole	450	S6.000	21.485	150				
SS6	22.703	2.181	Open Manhole	600	S5.002	20.740	225	S5.001	20.815	150	
								S6.000	20.522	150	
SJUNCT	22.725	2.023	Junction		S1.006	20.702	225	S1.005	20.702	225	
								S5.002	20.702	225	
SSWT11	22.609	2.400	Open Manhole	1200	S1.007	20.209	225	S1.006	20.661	225	452
SATT1	22.765	2.585	Junction		S1.008	20.180	225	S1.007	20.180	225	
SSWP12	22.880	2.712	Open Manhole	1200	S1.009	20.168	100	S1.008	20.168	225	
SS13-CP	23.296	0.751	Open Manhole	450	S1.010	22.545	100	S1.009	22.545	100	
S	23.340	0.869	Open Manhole	0		OUTFALL		S1.010	22.471	100	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SS1	-341.208	483.462	-341.208	483.462	Required	
SS2	-338.729	496.609	-338.729	496.609	Required	
SRE2.1	-345.902	504.919	-345.902	504.919	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SJUNCT	-343.545	506.113			No Entry	
SS3	-354.355	526.626	-354.355	526.626	Required	
SRE3.1	-358.306	532.002	-358.306	532.002	Required	
SJUNCT	-355.464	526.473			No Entry	
SRE4.1	-368.345	526.841	-368.345	526.841	Required	
SS4	-365.503	521.313	-365.503	521.313	Required	
SRE5.1	-355.804	488.221	-355.804	488.221	Required	
SS5	-354.584	493.287	-354.584	493.287	Required	
SS7	-368.169	500.004	-368.169	500.004	Required	
SS6	-364.603	513.315	-364.603	513.315	Required	
SJUNCT	-369.847	518.589			No Entry	
SSWT11	-375.801	524.334	-375.801	524.334	Required	
SATT1	-378.617	529.804			No Entry	
SSWP12	-368.248	535.049	-368.248	535.049	Required	
SS13-CP	-369.468	546.684	-369.468	546.684	Required	

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Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S	-367.927	548.965			No Entry	



Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.002	0.002	0.002
	User	-	100	0.003	0.003	0.005
	User	-	100	0.002	0.002	0.006
	User	-	100	0.001	0.001	0.008
1.001	User	-	100	0.002	0.002	0.002
	User	-	100	0.002	0.002	0.004
	User	-	100	0.002	0.002	0.006
2.000	User	-	100	0.002	0.002	0.002
1.002	User	-	100	0.002	0.002	0.002
	User	-	100	0.002	0.002	0.004
	User	-	100	0.003	0.003	0.007
	User	-	100	0.003	0.003	0.010
1.003	User	-	100	0.011	0.011	0.011
3.000	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.000	0.000	0.000
4.000	-	-	100	0.000	0.000	0.000
1.005	-	-	100	0.000	0.000	0.000
5.000	User	-	100	0.011	0.011	0.011
	User	-	100	0.002	0.002	0.013
5.001	User	-	100	0.004	0.004	0.004
	User	-	100	0.007	0.007	0.011
	User	-	100	0.002	0.002	0.013
6.000	User	-	100	0.025	0.025	0.025
5.002	User	-	100	0.002	0.002	0.002
1.006	User	-	100	0.004	0.004	0.004
	User	-	100	0.002	0.002	0.006
	User	-	100	0.021	0.021	0.027
1.007	-	-	100	0.000	0.000	0.000
1.008	-	-	100	0.000	0.000	0.000
1.009	-	-	100	0.000	0.000	0.000
1.010	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.116	0.116	0.116

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)
S1.010	S	23.340	22.471	0.000	0	0

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Simulation Criteria for Storm

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

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point Cv (Winter) 0.840
Return Period (years) 2 Summer Storms Yes Storm Duration (mins) 30
FEH Rainfall Version 2013 Winter Storms Yes
Site Location GB 562797 173610 TQ 62797 73610 Cv (Summer) 0.750

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Online Controls for Storm Pump Manhole: SSWP12, DS/PN: S1.009, Volume (m³): 3.5 Invert Level (m) 20.168 Depth (m) Flow (l/s) 0.0012.0000		
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Storage Structures for Storm

Cellular Storage Manhole: SATT1, DS/PN: S1.008

Invert Level (m) 20.550 Infiltration Coefficient Side (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Base (m/hr) 0.00000 Safety Factor 2.0

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	40.0	92.0	1.600	40.0	153.4	1.601	0.0	153.4

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

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

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

Synthetic Rainfall Details
Rainfall Model FEH Site Location GB 562797 173610 TQ 62797 73610 Cv (Summer) 0.750
FEH Rainfall Version 2013 Data Type Point Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 30, 100
Climate Change (%) 35, 45

WARNING: Half Drain Time has not been calculated as the structure is too full.

										Water	Surcharged	Flooded	Half Drain		Pipe		
PN	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Level	Depth	Volume	Flow /	Overflow	Time	Flow		Level
	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	(m)	(m)	(m³)	Cap.	(l/s)	(mins)	(l/s)	Status	Exceeded
S1.000	SS1	15 Winter	30	+35%					22.061	-0.054	0.000	0.43			3.9		OK
S1.001	SS2	15 Winter	30	+35%	100/60 Winter				21.606	-0.173	0.000	0.12			7.1		OK
S2.000	SRE2.1	15 Winter	30	+35%	100/240 Winter				21.964	-0.086	0.000	0.05			1.0		OK
S1.002	SJUNCT	120 Winter	30	+35%					21.492	-0.091	0.000	0.06			4.5		OK*
S1.003	SS3	120 Winter	30	+35%	30/15 Winter				21.491	0.327	0.000	0.21			6.2	SURCHARGED	
S3.000	SRE3.1	15 Summer	30	+35%	100/60 Winter				21.671	-0.100	0.000	0.00			0.0		OK
S1.004	SJUNCT	30 Summer	30	+35%					21.154	0.000	0.000	0.38			16.2	SURCHARGED*	
S4.000	SRE4.1	15 Summer	30	+35%	100/120 Winter				21.855	-0.100	0.000	0.00			0.0		OK
S1.005	SS4	120 Winter	30	+35%	30/15 Summer				21.490	0.429	0.000	0.11			5.5	SURCHARGED	
S5.000	SRE5.1	15 Winter	30	+35%	100/15 Summer				22.187	-0.022	0.000	0.97			6.6		OK
S5.001	SS5	15 Winter	30	+35%					22.035	-0.087	0.000	0.37			14.2		OK
S6.000	SS7	15 Winter	30	+35%	100/15 Winter				21.541	-0.094	0.000	0.30			12.9		OK
S5.002	SS6	120 Winter	30	+35%	30/15 Summer				21.491	0.526	0.000	0.31			9.1	SURCHARGED	
S1.006	SJUNCT	15 Summer	30	+35%					20.927	0.000	0.000	1.95			58.3	SURCHARGED*	
S1.007	SSWT11	120 Winter	30	+35%	30/15 Summer				21.488	1.054	0.000	0.66			17.9	SURCHARGED	
S1.008	SATT1	120 Winter	30	+35%	30/15 Summer				21.486	1.081	0.000	0.19			3.0	SURCHARGED*	
S1.009	SSWP12	120 Winter	30	+35%	30/15 Summer				21.484	1.216	0.000	0.88			2.0	SURCHARGED	
S1.010	SS13-CP	240 Winter	30	+35%					22.580	-0.065	0.000	0.26			2.0		OK

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

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

Synthetic Rainfall Details
Rainfall Model FEH Site Location GB 562797 173610 TQ 62797 73610 Cv (Summer) 0.750
FEH Rainfall Version 2013 Data Type Point Cv (Winter) 0.840
Margin for Flood Risk Warning (mm) 300.0 DTS Status ON Inertia Status ON
Analysis Timestep 2.5 Second Increment (Extended) DVD Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 30, 100
Climate Change (%) 35, 45

WARNING: Half Drain Time has not been calculated as the structure is too full.

										Water	Surcharged	Flooded	Half Drain		Pipe			
	US/MH			Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Level	Depth	Volume	Flow /	Overflow	Time	Flow	Level	
PN	Name	Storm		Period	Change	Surcharge	Flood	Overflow	Act.	(m)	(m)	(m³)	Cap.	(l/s)	(mins)	(l/s)	Status	Exceeded
S1.000	SS1	240	Winter	100	+45%					22.110	-0.005	0.000	0.13			1.2	OK	
S1.001	SS2	240	Winter	100	+45%	100/60	Winter			22.108	0.329	0.000	0.03			2.1	SURCHARGED	
S2.000	SRE2.1	240	Winter	100	+45%	100/240	Winter			22.108	0.058	0.000	0.01			0.3	SURCHARGED	
S1.002	SJUNCT	60	Summer	100	+45%					21.583	0.000	0.000	0.18			12.7	SURCHARGED*	
S1.003	SS3	240	Winter	100	+45%	30/15	Winter			22.107	0.943	0.000	0.16			4.7	SURCHARGED	
S3.000	SRE3.1	240	Winter	100	+45%	100/60	Winter			22.107	0.336	0.000	0.00			0.0	SURCHARGED	
S1.004	SJUNCT	15	Summer	100	+45%					21.154	0.000	0.000	0.47			20.0	SURCHARGED*	
S4.000	SRE4.1	240	Winter	100	+45%	100/120	Winter			22.107	0.152	0.000	0.00			0.0	SURCHARGED	
S1.005	SS4	240	Winter	100	+45%	30/15	Summer			22.106	1.045	0.000	0.08			4.3	SURCHARGED	
S5.000	SRE5.1	15	Winter	100	+45%	100/15	Summer			22.281	0.072	0.000	1.37			9.4	SURCHARGED	
S5.001	SS5	240	Winter	100	+45%					22.109	-0.013	0.000	0.10			4.0	OK	
S6.000	SS7	240	Winter	100	+45%	100/15	Winter			22.108	0.473	0.000	0.09			3.9	SURCHARGED	
S5.002	SS6	240	Winter	100	+45%	30/15	Summer			22.106	1.141	0.000	0.27			7.9	SURCHARGED	
S1.006	SJUNCT	15	Summer	100	+45%					20.927	0.000	0.000	2.41			72.0	SURCHARGED*	
S1.007	SSWT11	240	Winter	100	+45%	30/15	Summer			22.104	1.670	0.000	0.57			15.6	SURCHARGED	
S1.008	SATT1	240	Winter	100	+45%	30/15	Summer			22.102	1.697	0.000	0.17			2.6	SURCHARGED*	
S1.009	SSWP12	240	Winter	100	+45%	30/15	Summer			22.100	1.832	0.000	0.88			2.0	SURCHARGED	
S1.010	SS13-CP	30	Winter	100	+45%					22.580	-0.065	0.000	0.26			2.0	OK	