

Motion

84 North Street
Guildford
Surrey GU1 4AU

Date 17/06/2026 16:28
File MD SC 2026-06-17 - 2yr (...)

Innovyze

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Designed by Commonuser
Checked by

Source Control 2020.1.3

Summary of Results for 2 year Return Period

Half Drain Time : 315 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	26.725	0.025	0.0	0.3	0.3	10.3	Flood Risk
30 min Summer	26.738	0.038	0.0	0.5	0.5	15.5	Flood Risk
60 min Summer	26.751	0.051	0.0	0.8	0.8	20.9	Flood Risk
120 min Summer	26.773	0.073	0.0	1.2	1.2	29.6	Flood Risk
180 min Summer	26.784	0.084	0.0	1.4	1.4	34.0	Flood Risk
240 min Summer	26.790	0.090	0.0	1.4	1.4	36.7	Flood Risk
360 min Summer	26.798	0.098	0.0	1.4	1.4	39.7	Flood Risk
480 min Summer	26.801	0.101	0.0	1.4	1.4	41.3	Flood Risk
600 min Summer	26.803	0.103	0.0	1.4	1.4	42.0	Flood Risk
720 min Summer	26.804	0.104	0.0	1.4	1.4	42.3	Flood Risk
960 min Summer	26.803	0.103	0.0	1.4	1.4	41.9	Flood Risk
1440 min Summer	26.799	0.099	0.0	1.4	1.4	40.2	Flood Risk
2160 min Summer	26.791	0.091	0.0	1.4	1.4	37.1	Flood Risk
2880 min Summer	26.784	0.084	0.0	1.4	1.4	34.4	Flood Risk
4320 min Summer	26.776	0.076	0.0	1.3	1.3	30.9	Flood Risk
5760 min Summer	26.770	0.070	0.0	1.2	1.2	28.4	Flood Risk
15 min Winter	26.725	0.025	0.0	0.3	0.3	10.3	Flood Risk
30 min Winter	26.738	0.038	0.0	0.5	0.5	15.5	Flood Risk
60 min Winter	26.751	0.051	0.0	0.8	0.8	20.9	Flood Risk
120 min Winter	26.773	0.073	0.0	1.2	1.2	29.8	Flood Risk
180 min Winter	26.784	0.084	0.0	1.4	1.4	34.4	Flood Risk
240 min Winter	26.791	0.091	0.0	1.4	1.4	37.0	Flood Risk
360 min Winter	26.797	0.097	0.0	1.4	1.4	39.6	Flood Risk
480 min Winter	26.800	0.100	0.0	1.4	1.4	40.8	Flood Risk
600 min Winter	26.801	0.101	0.0	1.4	1.4	41.0	Flood Risk
720 min Winter	26.800	0.100	0.0	1.4	1.4	40.8	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	34.771	0.0	7.3	26
30 min Summer	22.947	0.0	12.3	40
60 min Summer	14.687	0.0	20.2	68
120 min Summer	10.255	0.0	31.5	124
180 min Summer	8.109	0.0	38.8	180
240 min Summer	6.784	0.0	44.1	216
360 min Summer	5.172	0.0	51.4	280
480 min Summer	4.220	0.0	56.4	346
600 min Summer	3.587	0.0	60.1	414
720 min Summer	3.133	0.0	63.1	484
960 min Summer	2.519	0.0	67.6	618
1440 min Summer	1.857	0.0	74.1	886
2160 min Summer	1.381	0.0	84.5	1264
2880 min Summer	1.129	0.0	91.1	1628
4320 min Summer	0.869	0.0	102.7	2376
5760 min Summer	0.733	0.0	116.0	3104
15 min Winter	34.771	0.0	7.3	26
30 min Winter	22.947	0.0	12.3	40
60 min Winter	14.687	0.0	20.2	68
120 min Winter	10.255	0.0	31.4	122
180 min Winter	8.109	0.0	38.8	178
240 min Winter	6.784	0.0	44.1	230
360 min Winter	5.172	0.0	51.4	288
480 min Winter	4.220	0.0	56.4	366
600 min Winter	3.587	0.0	60.1	442
720 min Winter	3.133	0.0	63.1	516

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Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	2	Cv (Summer)	1.000
FEH Rainfall Version	2013	Cv (Winter)	1.000
Site Location	GB 525400 117400 TQ 25400 17400	Shortest Storm (mins)	15
Data Type	Catchment	Longest Storm (mins)	5760
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.199

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
From:	To:	From:	To:	From:	To:
0	4	0.066	4	8	0.066
				8	12
					0.066

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Model Details

Storage is Online Cover Level (m) 27.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	19.4
Membrane Percolation (mm/hr)	1000	Length (m)	70.0
Max Percolation (l/s)	377.2	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	26.700	Cap Volume Depth (m)	0.300

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0064-1500-0580-1500	Sump Available	Yes
Design Head (m)	0.580	Diameter (mm)	64
Design Flow (l/s)	1.5	Invert Level (m)	26.700
Flush-Flo™	Calculated	Minimum Outlet Pipe Diameter (mm)	100
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1200
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.580	1.5	Kick-Flo®	0.380	1.2
Flush-Flo™	0.172	1.5	Mean Flow over Head Range	-	1.3

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

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	1.4	0.800	1.7	2.000	2.6	4.000	3.6	7.000	4.7
0.200	1.5	1.000	1.9	2.200	2.7	4.500	3.8	7.500	4.9
0.300	1.4	1.200	2.1	2.400	2.9	5.000	4.0	8.000	5.1
0.400	1.3	1.400	2.2	2.600	3.0	5.500	4.2	8.500	5.2
0.500	1.4	1.600	2.4	3.000	3.2	6.000	4.4	9.000	5.4
0.600	1.5	1.800	2.5	3.500	3.4	6.500	4.6	9.500	5.5

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Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	1.000
FEH Rainfall Version	2013	Cv (Winter)	1.000
Site Location	GB 525400 117400 TQ 25400 17400	Shortest Storm (mins)	15
Data Type	Catchment	Longest Storm (mins)	5760
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.199

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
From:	To:	From:	To:	From:	To:
0	4	0.066	4	8	0.066
				8	12
					0.066

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Model Details

Storage is Online Cover Level (m) 27.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	19.4
Membrane Percolation (mm/hr)	1000	Length (m)	70.0
Max Percolation (l/s)	377.2	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	26.700	Cap Volume Depth (m)	0.300

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0086-2800-0580-2800	Sump Available	Yes
Design Head (m)	0.580	Diameter (mm)	86
Design Flow (l/s)	2.8	Invert Level (m)	26.700
Flush-Flo™	Calculated	Minimum Outlet Pipe Diameter (mm)	100
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1200
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.580	2.8	Kick-Flo®	0.397	2.4
Flush-Flo™	0.174	2.8	Mean Flow over Head Range	-	2.4

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

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	2.6	0.800	3.2	2.000	5.0	4.000	6.9	7.000	9.0
0.200	2.8	1.000	3.6	2.200	5.2	4.500	7.3	7.500	9.3
0.300	2.7	1.200	3.9	2.400	5.4	5.000	7.6	8.000	9.6
0.400	2.4	1.400	4.2	2.600	5.6	5.500	8.0	8.500	9.9
0.500	2.6	1.600	4.5	3.000	6.0	6.000	8.3	9.000	10.2
0.600	2.8	1.800	4.7	3.500	6.4	6.500	8.6	9.500	10.5

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Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	30	Cv (Summer)	1.000
FEH Rainfall Version	2013	Cv (Winter)	1.000
Site Location	GB 525400 117400 TQ 25400 17400	Shortest Storm (mins)	15
Data Type	Catchment	Longest Storm (mins)	5760
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.199

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
From:	To:	From:	To:	From:	To:
0	4	0.066	4	8	0.066
				8	12
					0.066

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Model Details

Storage is Online Cover Level (m) 27.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	19.4
Membrane Percolation (mm/hr)	1000	Length (m)	70.0
Max Percolation (l/s)	377.2	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	26.700	Cap Volume Depth (m)	0.300

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0101-4000-0580-4000	Sump Available	Yes
Design Head (m)	0.580	Diameter (mm)	101
Design Flow (l/s)	4.0	Invert Level (m)	26.700
Flush-Flo™	Calculated	Minimum Outlet Pipe Diameter (mm)	150
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1200
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.580	4.0	Kick-Flo®	0.410	3.4
Flush-Flo™	0.182	4.0	Mean Flow over Head Range	-	3.4

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

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	3.3	0.800	4.6	2.000	7.1	4.000	9.9	7.000	12.9
0.200	4.0	1.000	5.1	2.200	7.4	4.500	10.4	7.500	13.3
0.300	3.9	1.200	5.6	2.400	7.7	5.000	11.0	8.000	13.8
0.400	3.5	1.400	6.0	2.600	8.0	5.500	11.5	8.500	14.2
0.500	3.7	1.600	6.4	3.000	8.6	6.000	11.9	9.000	14.6
0.600	4.1	1.800	6.8	3.500	9.3	6.500	12.4	9.500	15.0

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Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	1.000
FEH Rainfall Version	2013	Cv (Winter)	1.000
Site Location	GB 525400 117400 TQ 25400 17400	Shortest Storm (mins)	15
Data Type	Catchment	Longest Storm (mins)	5760
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.199

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
From:	To:	From:	To:	From:	To:
0	4 0.066	4	8 0.066	8	12 0.066

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Model Details

Storage is Online Cover Level (m) 27.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	19.4
Membrane Percolation (mm/hr)	1000	Length (m)	70.0
Max Percolation (l/s)	377.2	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	26.700	Cap Volume Depth (m)	0.300

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0116-5500-0580-5500	Sump Available	Yes
Design Head (m)	0.580	Diameter (mm)	116
Design Flow (l/s)	5.5	Invert Level (m)	26.700
Flush-Flo™	Calculated	Minimum Outlet Pipe Diameter (mm)	150
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1200
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.580	5.5	Kick-Flo®	0.418	4.7
Flush-Flo™	0.194	5.5	Mean Flow over Head Range	-	4.6

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

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	4.1	0.800	6.4	2.000	9.8	4.000	13.7	7.000	17.8
0.200	5.5	1.000	7.1	2.200	10.3	4.500	14.4	7.500	18.5
0.300	5.3	1.200	7.7	2.400	10.7	5.000	15.2	8.000	19.1
0.400	4.9	1.400	8.3	2.600	11.1	5.500	15.9	8.500	19.7
0.500	5.1	1.600	8.8	3.000	11.9	6.000	16.5	9.000	20.3
0.600	5.6	1.800	9.3	3.500	12.8	6.500	17.2	9.500	20.8

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