

Greenfield runoff estimation in accordance with "Greater Dublin Strategic Drainage
Regional Drainage Policies, Volume 2, New Development, Flood Estimation for S
Catchments

Location of proposed development: Stillorgan

Site Statistics	
Area (m ²)	6454
Area (ha)	0.6454
Area (km ²)	0.0065
Area in Acres	1.595
SAAR (mm)	787
SOIL	0.45

Return Period (Years)	Growth Curve Factor
1	0.85
QBAR	1
10	1.7
30	2.1
100	2.6
200	2.9

Ref: GDSDS, Vol 2, 6.6.1.2

QBAR (m ³ /s)	0.0032
QBAR (l/s)	3.2

} *From equation given in GDSDS, Vol 2, 6.6.1.2, Flood estimation for Small Catchments
(Institute of Hydrology report No. 124)*

QBAR-30 (l/s)	6.6
QBAR-100 (l/s)	8.2

QBAR (l/s/ha)	4.9
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QBAR-30 (l/s/ha)	10.3
QBAR-100 (l/s/ha)	12.7

Rainfall data taken from information provided by MetEireann

$$Q_{bar_{rural}} = 0.00108 \times (0.01 \times AREA)^{0.89} \times SAAR^{1.17} \times SPR^{2.17}, m^3/s$$

Study,
mall

17D102 - Surface Water Attenuation Calculation 1-100 + 20%

1	2	3	4	5	6
<i>Storm Frequency & Duration</i>	<i>Rainfall</i>	<i>Rainfall Intensity</i>	<i>Potential Run-off From Developed Site</i>	<i>Allowable Run-off From Developed Site</i>	<i>Storage Requirement</i>
	<i>(mm)</i>	<i>(mm/hr)</i>	<i>(l/s)</i>	<i>(l/s)</i>	<i>(m3)</i>
M100-5 min	20.88	250.56	158.69	3.2	46.6
M100-10 min	29.04	174.24	110.35	3.2	64.3
M100-15 min	34.08	136.32	86.34	3.2	74.8
M100-30 min	42.24	84.48	53.50	3.2	90.5
M100-60 min	52.20	52.20	33.06	3.2	107.5
M100-2 hr	64.56	32.28	20.44	3.2	124.2
M100-3 hr	73.08	24.36	15.43	3.2	132.1
M100 - 4hr	79.80	19.95	12.64	3.2	135.9
M100-6 hr	90.24	15.04	9.53	3.2	136.6
M100-9 hr	102.24	11.36	7.19	3.2	129.4
M100-12 hr	111.60	9.30	5.89	3.2	116.2
M100-18 hr	126.36	7.02	4.45	3.2	80.7
M100-24 hr	138.00	5.75	3.64	3.2	38.2
M100-2day	153.00	3.19	2.02	3.2	-204.1

Allowable Run-off	3.2	l/s			
	<u>Area</u>	<u>Factor</u>	<u>Total</u>		
Roof	2280	1	2280	m ²	
Road	0	1	0	m ²	
Footpath	0	1	0	m ²	
Permeable Paving		1	0	m ²	
Total Area			2280	m²	

STORMTECH Stormwater Management System Design Tool

ver: Aug15

PROJECT REF:	17D102
LOCATION:	St.Laurence Park, Stillorgan Library
DATE:	07.05.20
CREATED BY:	LM

SYSTEM PARAMETERS

Required Total Storage	137	m ³
Stormtech chamber model	SC740	
Filtration Permeable Geo or Impermeable Geo	Filter geo	
Number of Isolator Rows (IR)	1	

SITE PARAMETERS

Stone Porosity	40%		
Excavation Batter Angle (degrees)	60	°	<i>Minimum Requirement</i>
Stone Above Chambers	0.3	m	0.15
Stone Below Chambers	0.23	m	0.15
In-between Row Spacing	0.23	m	0.15
Additional Storage outside Excavation. E.g manholes, Header Pipe	0	m ³	

HEADER PIPE

Is Header pipe required within excavation	No
Orientation of Header Pipe	Parrallel to IR
Diameter of Header Pipe	0.6 m
Length of Header Pipe	0 m

CHAMBER SYSTEM DIMENSIONS

	Calculated	Adopted	
Number of Rows		3	ea
Number of units per Row		15	ea
System Installed Storage Depth (effective storage depth)	1.290		m
Tank overall installed Width at base	4.95	5	m
Tank overall installed Length at Base	33.25	34	m
Total Effective System Storage	135.3	138.5	m³

STORMTECH SYSTEM DETAIL

StormTech Chamber Model	SC740
Unit Width	1.295 m
Unit Length	2.17 m
Unit Height	0.76 m
Min Cover Over System	0.3 m
Max Cover Over Chamber	2.4 m
Chamber Internal Storage Vol.	1.3 m ³
Header Pipe Internal Storage Vol in Excavation	0.0 m ³

STONE AND EXCAVATION DETAIL

Volume of Dig for System	258	m ³
Width at base	5.00	m
Width at top	6.49	m
Length at base	34.00	m
Length at top	35.49	m
Depth Of System	1.29	m
Area of Dig at Base of System	170	m ²
Area of Dig at Top of System	230	m ²
Void Ratio	54%	
Stone Requirement - m3	199	m ³
Stone Requirement - tonne	326	tonne