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HORIZONTAL SOAKAWAY CALCULATIONS CIRIA C753 - EQ 25.4 - using FEH 22 rainfall data

PROJECT TITLE:	Gardeners Arms Ardingly		JOB No:	25049
SOAKAWAY NO.:	SA1	LOCATION:	Car park	DATE: Mar-26

1. FEH Rainfall data		2. Design Inflow		3. Test rate calculations		4. Design Outflow results	
Event:	100 year	Roof (m ²):	262	Test pit L:	2.00	Tot vol.:	2
CC %	1.45	Driveway (m ²):	0	Test pit W:	1.00	q _{p50} :	3
Index:	10	Paths/patios (m ²):	0	Test pit D:	1.00	V _{p75-25} :	1
Urban Creep (%)	10	Total Area (sq.m):	288	Free vol (%):	100	t _{p75-25} :	2097
				Effective depth:		1.000	
				Infiltration rate (f) (m/s):		2.649E-06	
						a _{s0} (sq.m):	3.00
						Inflow (cu.m):	0.00
						Outflow (cu.m):	1.00
						Storage (cu.m):	-2.00

5. Infiltration system data				6. Infiltration coefficient (q) (m/h)		7. FOS
Length (m):	19.000	Width (m):	4.00	q value (m/h):	0.002	
stimated depth (d):	0.500	Inlet IL:	9.355	Calculated base:	9.002	
Free vol (%):	96	diam inlet:	0.100	Top of s/away:	9.490	
				Rate (q) provided by SI:		5
				Calculated Soil Rate (f):		0.009537

Summary of designer's sizes for chosen D min duration for 100 year storm

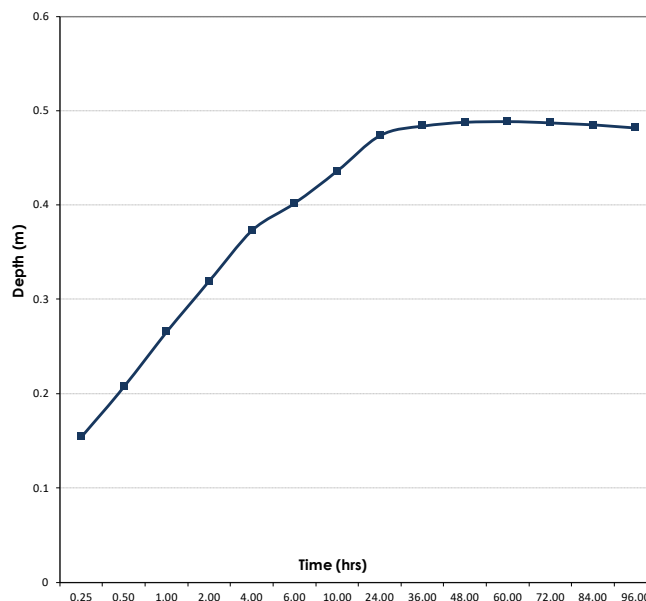
L	W	d	Ab	Ad	P	R	n
19.00	4.00	0.500	76.00	288.20	46.00	3.79	0.96

Soakaway calculations are based on BRE 365 infiltration results and the calculated method shown in CIRIA document C697 & C753 and uses FEH 22 rainfall data. The rainfall depths are factored by the climate change growth factor chosen. The porosity rate is further factored for safety to suit risk from long term siltting. Always refer to the project construction detail sheets 200 or 201 for the soakaway or permeable pavement make-up and the main general arrangement (GA) showing the size, levels and position of the soakaway.

Calculations used are derived from CIRIA document C753 - SUDS manual Eq 25.4

D (Hrs)	mm	i (m/h)	a	b	h _{max}
0.25	27.05	0.1569	-513.66	0.001203	0.1544
0.50	36.37	0.1055	-344.78	0.001203	0.2073
1.00	46.78	0.0678	-221.14	0.001203	0.2658
2.00	56.52	0.0410	-132.94	0.001203	0.3194
4.00	66.65	0.0242	-77.70	0.001203	0.3729
6.00	72.56	0.0175	-55.94	0.001203	0.4022
10.00	80.05	0.0116	-36.47	0.001203	0.4360
24.00	92.26	0.0056	-16.66	0.001203	0.4739
36.00	98.80	0.0040	-11.42	0.001203	0.4838
48.00	104.26	0.0031	-8.69	0.001203	0.4876
60.00	109.20	0.0026	-7.02	0.001203	0.4884
72.00	113.80	0.0023	-5.88	0.001203	0.4873
84.00	118.16	0.0020	-5.05	0.001203	0.4850
96.00	122.36	0.0018	-4.42	0.001203	0.4817

MAX HEIGHT (H_{max}): 0.4884



Time to empty

H _{max} :	0.4884	Time to empty (hrs):	1222
R:	3.79		
		Recalculated q (m/h):	0.00800526
		Equivalent f rate:	0.00000222

EMPTY TIME IS GREATER THAN 24 HOURS
SEE REQUIRED q ABOVE