

IoH 124 Calculation of Greenfield Runoff Rate

Project:	Phase 2 Holland Park, Spalding			
	Lincolnshire			
OS Location	523200	E	321100	N
Date:	30th May 2022			
Written By:	JPP	Checked By:	BWA	

SAAR	573	mm
Pro Rata Site Area =	50	ha
	0.5	km ²
Soil WRA Class	2	
Soil Type SPR Value	0.3	

$$Q_{bar}_{rural} = 0.00108 \times (AREA)0.89 \times (SAAR)1.17 \times (SOIL)2.17$$

$$Q_{bar-50ha} = 0.072 \text{ m}^3/\text{s}$$

From Regional Growth Curve Factor

Region: 5

Return period	1	2	5	10	25	30	50	100	500
Growth Factor	0.85	0.89	1.29	1.65	2.25	2.37	2.83	3.56	5.02

Q₁ 50ha =	0.061	m ³ /s	=	61.28	l/s	=	1.226	l/s/ha
Q₂ 50ha =	0.064	m ³ /s	=	64.16	l/s	=	1.283	l/s/ha
Q₅ 50ha =	0.093	m ³ /s	=	93.00	l/s	=	1.860	l/s/ha
Q₁₀ 50ha =	0.119	m ³ /s	=	118.96	l/s	=	2.379	l/s/ha
Q₂₅ 50ha =	0.162	m ³ /s	=	162.21	l/s	=	3.244	l/s/ha
Q₃₀ 50ha =	0.171	m ³ /s	=	170.86	l/s	=	3.417	l/s/ha
Q₅₀ 50ha =	0.204	m ³ /s	=	204.03	l/s	=	4.081	l/s/ha
Q₁₀₀ 50ha =	0.257	m ³ /s	=	256.66	l/s	=	5.133	l/s/ha
Q₅₀₀ 50ha =	0.362	m ³ /s	=	361.91	l/s	=	7.238	l/s/ha

Factored for Development Impermeable Area

Site Area = 2.477

Q_{bar} site =	0.004	m ³ /s	=	3.6	l/s	=	1.4	l/s/ha
Q₁ site =	0.003	m ³ /s	=	3.0	l/s	=	1.2	l/s/ha
Q₂ site =	0.003	m ³ /s	=	3.2	l/s	=	1.3	l/s/ha
Q₅ site =	0.005	m ³ /s	=	4.6	l/s	=	1.9	l/s/ha
Q₁₀ site =	0.006	m ³ /s	=	5.9	l/s	=	2.4	l/s/ha
Q₂₅ site =	0.008	m ³ /s	=	8.0	l/s	=	3.2	l/s/ha
Q₃₀ site =	0.008	m ³ /s	=	8.5	l/s	=	3.4	l/s/ha
Q₅₀ site =	0.010	m ³ /s	=	10.1	l/s	=	4.1	l/s/ha
Q₁₀₀ site =	0.013	m ³ /s	=	12.7	l/s	=	5.1	l/s/ha
Q₅₀₀ site =	0.018	m ³ /s	=	17.9	l/s	=	7.2	l/s/ha

Note: For greenfield site, the critical duration is generally not relevant and the prediction of the peak rate of runoff using IoH124 does not require consideration of storm duration.