

		Project			Berrite Works			Job No.		AVO22034	
		Client			Berrite Limited			Calc sheet no		Rev.	
		Element			Calc by		Date	Check by	Date		
		Brownfield Surface Water Runoff			VW		Jan 2023	JM	Jan 2023		
Ref		Calculations							Output		
		<p>Using the Modified Rational Method (as set out in CIRIA C753) to calculate the Brownfield runoff rate.</p> <p><math>Q = 2.78 \times C \times i \times A</math> (EQ. 24.5)</p> <p><math>i</math> = Average rainfall intensity of the design storm in millimetres per hour, mm/hr. <math>A</math> = Effective impermeable area of the existing site in hectares, ha. <math>Q</math> = Rainfall runoff rate in litres per second, l/s. <math>C</math> = Dimensionless Runoff Coefficient. * 2.78 = Conversion factor to address the rainfall unit being in mm/hr.</p> <p>*Ciria C753 (Section 24.6.2), volumetric and routing coefficients CV &amp; CR (CV of the order 0.6 and the routing coefficient, CR of the order of 1.3) the two coefficients are usually incorporated into a single term with a value of between 0.8 and 1.0 depending on how effectively the catchment is drained.</p> <p>A constant rainfall intensity of 35mm/hr has been assumed (24.6.2 – Rainfall intensity).</p> <p>The estimated brownfield rainfall rate has been based on the existing drainage systems draining a total area of 0.228ha.</p> <p><math>Q = 2.78 \times 1.0 \times 35 \times 0.228 = 22.18 \text{ l/s}</math></p> <p>Growth curve factor has been derived from the 9 hydrological regions of the UK. Based on the Flood Studies Report.</p> <p>Growth Factors:</p> <p>1 Year = <math>22.18 \times 0.93 = 20.63 \text{ l/s}</math></p> <p>30 Year = <math>22.18 \times 1.78 = 39.49 \text{ l/s}</math></p> <p>100 Year = <math>22.18 \times 2.18 = 48.36 \text{ l/s}</math></p>									
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