

The following analysis has been undertaken to establish the peak discharge from the existing (brownfield) development. The analysis relates peak discharge to contributing area, average rainfall intensity and a dimensionless coefficient. The coefficient is generally termed the 'runoff coefficient' and has a range from 0 (no runoff produced) to 1 (perfect conversion of rainfall intensity). A unit conversion factor of 2.78 is applied to account for the units typically used.

The Modified Rational Method can be expressed as:

$$Q_p = 2.78 CiA$$

Where:

Q_p is the peak discharge

C is a dimensionless coefficient

i is the average rainfall intensity during the time of concentration, 50 mm/hr

A is the contributing catchment area

The impermeable area contributing to the combined outfall is: **0.033** ha

$$Q_p = 4.6 \text{ l/s}$$

Proposed Discharge Rate:

In accordance with guidelines for brownfield developments, a reduction will be applied to the existing peak flow rate in line with the LLFA requirements. Percentage reduction 50 %

$$Q_{MAX} = 2.3 \text{ l/s} *$$

*This is the maximum permissible rate. Therefore the outgoing pipe flow rate must not exceed this rate in any design storm event up to and including the 1 in 100 year Critical Duration Event, with an allowance for climate change.