

Consider the two inlets and two pipes shown in Figure 11.16. Catchment A has an area of 0.5 ha and is 60% impervious, and catchment B has an area of 1 ha and is 15% impervious. The runoff coefficient, C ; length of overland flow, L ; roughness coefficient, n ; and average slope, S_0 , of the pervious and impervious surfaces in both catchments are given in the following table:

Catchment	Surface	C	L (m)	n	S_0
A	Pervious	0.2	80	0.2	0.01
	Impervious	0.9	60	0.1	0.01
B	Pervious	0.2	140	0.2	0.01
	Impervious	0.9	65	0.1	0.01

The IDF curve of the design storm is given by

$$i = \frac{8000}{t + 40}$$

where i is the average rainfall intensity in mm/h and t is the duration of the storm in minutes. Calculate the peak flow rates to the inlets and in the pipes.

Figure 11.16: Computation of peak flow rates in inlets and pipes Source: ASCE (1992).

