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GISBORN AUCTION MART

Greenfield Run-off Analysis of Existing Site Area

REVISION. P01

DESIGNED. AC

CHECKED. JLE

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The following analysis has been undertaken to establish the greenfield runoff rate for a development planned on land which is currently undeveloped. The analysis uses the IH124 method and site characteristic information to give a Q_{bar} rural (l/s) value which can be utilised alongside a growth curve factor for the calculation of estimated site discharge values for critical storm periods. This Q_{bar} value can be applied to proposed drainage designs and utilised as a value for which rates are to be restricted.

The IH124 Method can be expressed as:

$$Q_{bar} = Q_{BarRural} = 0.00108 \times (0.01 \times A)^{0.89} \times SAAR^{1.17} \times SPR^{2.17}, \text{ m}^3/\text{s}$$

Where:

$Q_{barrural}$ is the mean annual flood flow from a rural catchment (approximately 2.3 year return period)

A is the area of the catchment in ha.

SAAR is the standard average annual rainfall for the period 1941 to 1970 in mm (SAAR 41-70). SAAR 61-90, . which was analysed for FEH for rainfall from 1961 - 1990, is virtually the same and can also be used

SPR is Standard Percentage Runoff coefficient for the SOIL category.

A, The total site area contributing to the catchment	0.199	(ha)
SAAR	1383	(mm)
Hydrological Region	10	
Soil Type	5	
SPR	0.53	

Mean Annual Greenfield Peak Flow (Estimated site discharges)

This method of calculating the mean annual greenfield peak flow is based on flood estimation for small catchments, specifically, Report no.124 (Institute of Hydrology 1994)

$$Q_{bar} = 2.77 \text{ l/s}$$

Greenfield Runoff Rates

1 in 1 year	2.41	l/s
1 in 30 years	4.70	l/s
1 in 100 years	5.75	l/s
1 in 200 years	6.56	l/s