Quick Storage Estimate Calculator

Storage varies with different configurations of controls and **Stormwater Controls - SWC**. The program will look at two extreme cases to provide an estimate of the range of storage required for the Site. This estimate may be used as a starting point for detailed design but it must never be used as a final design as the variables it assumes are significant. In certain circumstances it is also possible to achieve a final design outside the range shown.

Use Plan Data - When this option is selected the inflows already specified on the design will be used and the Rainfall setup in the Analysis Criteria will be used together with the Runoff Coefficient. In addition to inflow areas, the calculation will also total the flows from any Input Hydrographs so these are also considered as part of the storage calculation. Please note however that each Input Hydrograph is capped to the length of the analysis run for the current event. i.e. twice the storm duration.

User Input - When this option is selected the specified area will be used as well as the selected rainfall.

Area *(Use Plan Data only)* - This is the total impermeable (roof and paved) area in hectares.

Volumetric Runoff Coefficient - The proportion of rainfall falling on the catchment that enters the Site as surface runoff.

Discharge Rate - The maximum discharge required from the Site.

Infiltration Coefficient - If set to 0 all outflow will be through traditional controls and will be limited by the Discharge Rate. If set to a non-zero value this defines the infiltration rate from both the sides and base of the structure. Any infiltration flow is in addition to the maximum allowable discharge from the control. If the Infiltration Coefficient is set the program will generate an Infiltration feasibility overlay for the results graphs.

Increase Rainfall - This will scale all rainfall by the amount specified. This can be used to take climate change, or other factors, into account.

Rainfall Method *(Use Plan Data only)* - A set of rainfall options are available to choose from:

- **Design Storms -** A choice of a series of rainfall methodologies are available: ARR, SCS or User Defined. Depending on the selected option the required variables are requested.
- **Rainfall Records** - A set of rainfall records can be entered or loaded from file. These could be from another synthetic rainfall methodology or even a real recorded event. Options to load from CSV, TXT and Excel formats are available for ease.

When all variables have been set as required click '**Calculate**' to generate the results.

Method of Analysis

If using ARR Rainfall the software will run a fixed set of storms for each of the two cases: 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640 and 10080. However if a single Rainfall event is entered only this single event is used to determine the storage estimate.
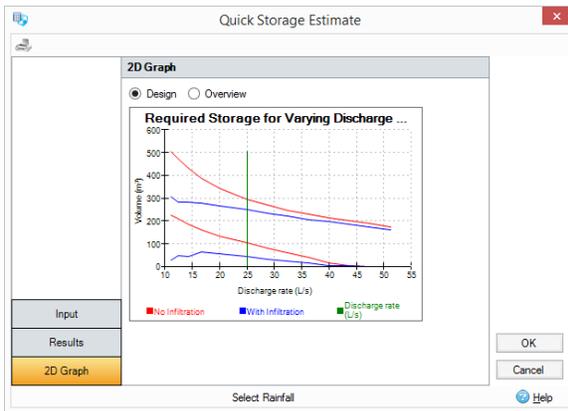
Results
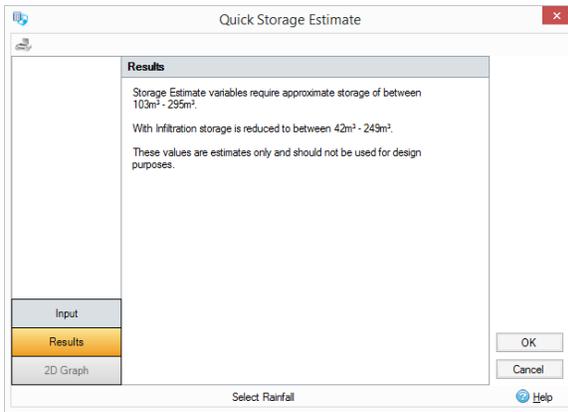
The program shows the upper and lower bounds of storage required for the variables given.

If the infiltration coefficient was set to a non-zero value then a range of storage required will also be presented for an infiltration system.

2D Graphs

Design Graph
The Design graph shows the effects on storage requirements of varying the maximum discharge rate. The minimum and maximum storage is shown in purple. The green vertical line shows the specified maximum allowable discharge rate. If the infiltration coefficient was set to a non-zero value then maximum and minimum storage requirements of an infiltration system are overlaid in blue.

Overview Graph
The Overview graph shows the effects on storage requirements of varying the maximum discharge rate. A much larger range of discharge values are shown than the Design graph. The minimum and maximum storage is shown in purple. The green vertical line shows the specified maximum allowable discharge rate. If the infiltration coefficient was set to a non-zero value then maximum and minimum storage requirements of an infiltration system are overlaid in blue

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