

# Surface water storage requirements for sites

Site name:

Site location:

## Site coordinates

Latitude:

Longitude:

Reference:

Date:

This is an estimation of the storage volume requirements that are needed to meet normal best practice criteria in line with Environment Agency guidance "Preliminary rainfall runoff management for developments", W5-074/A/TR1/1 rev. E (2012) and the CIRIA SUDS Manual (2007). It is not to be used for detailed design of drainage systems. It is recommended that every drainage scheme uses hydraulic modelling software to finalise volume requirements and design details before drawings are produced.

## Site characteristics

|                                                          |       |      |
|----------------------------------------------------------|-------|------|
| Total site area                                          | 33.8  | ha   |
| Significant public open space                            | 30.42 | ha   |
| Area positively drained                                  | 3.38  | ha   |
| Impermeable area                                         | 3.37  | ha   |
| Percentage of drained area that is impermeable           | 99.7  | %    |
| Impervious area drained via infiltration                 | 3.37  | ha   |
| Return period for infiltration system design             | 10    | year |
| Impervious area drained to rainwater harvesting systems  | 0     | ha   |
| Return period for rainwater harvesting system design     | 10    | year |
| Compliance factor for rainwater harvesting system design | 66    | %    |
| Net site area for storage volume design                  | 1.18  | ha   |

## Methodology

|                          |                             |
|--------------------------|-----------------------------|
| Greenfield runoff method | IH124                       |
| Volume control approach  | Use Long Term Storage       |
| Qbar estimation method   | Calculate from SPR and SAAR |
| SPR estimation method    | Calculate from SOIL type    |
| SOIL type                | 1                           |
| HOST class               | N/A                         |
| SPR                      | 0.10                        |

## Hydrological characteristics

|                               | Default | Edited |    |
|-------------------------------|---------|--------|----|
| SAAR                          | 680     | 680    | mm |
| M5-60 Rainfall Depth          | 17      | 17     | mm |
| 'r' Ratio M5-60/M5-2 day      | 0.3     | 0.3    |    |
| FEH/FSR conversion factor     | 1.02    | 1.02   |    |
| Hydrological region           | 9       | 9      |    |
| Growth curve factor: 1 year   | 0.88    | 0.88   |    |
| Growth curve factor: 10 year  | 1.42    | 1.42   |    |
| Growth curve factor: 30 year  | 1.78    | 1.78   |    |
| Growth curve factor: 100 year | 2.18    | 2.18   |    |

## Design criteria

|                                 |     |    |
|---------------------------------|-----|----|
| Climate change allowance factor | 1.3 |    |
| Urban creep allowance factor    | 1.1 |    |
| Interception rainfall depth     | 5   | mm |

## Greenfield runoff rates

|                | Default | Edited |     |
|----------------|---------|--------|-----|
| Qbar           | 0.55    | 0.55   | l/s |
| 1 in 1 year    | 5.00    | 5.00   | l/s |
| 1 in 30 years  | 6.02    | 6.02   | l/s |
| 1 in 100 years | 7.37    | 7.37   | l/s |

Please note that a minimum flow of 5 l/s applies to any site

## Estimated storage volumes

|                      | Default  | Edited   |                |
|----------------------|----------|----------|----------------|
| Interception storage | 133.46   | 133.46   | m <sup>3</sup> |
| Attenuation storage  | 0.00     | 0.00     | m <sup>3</sup> |
| Long term storage    | 1,436.32 | 1,436.32 | m <sup>3</sup> |
| Treatment storage    | 141.76   | 141.76   | m <sup>3</sup> |
| Total storage        | 1,569.78 | 1,569.78 | m <sup>3</sup> |

# Surface water storage requirements for sites

Site name:

Site location:

Site coordinates

Latitude: 53.02947° N

Longitude: 2.92473° W

Reference: gcmvtmwr0cen / 1.18

Date: 18 Dec 2014

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## Site characteristics

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| Significant public open space                            | 30.42 | ha   |
| Area positively drained                                  | 3.38  | ha   |
| Impermeable area                                         | 3.37  | ha   |
| Percentage of drained area that is impermeable           | 99.7  | %    |
| Impervious area drained via infiltration                 | 3.37  | ha   |
| Return period for infiltration system design             | 10    | year |
| Impervious area drained to rainwater harvesting systems  | 0     | ha   |
| Return period for rainwater harvesting system design     | 10    | year |
| Compliance factor for rainwater harvesting system design | 66    | %    |
| Net site area for storage volume design                  | 1.18  | ha   |

## Methodology

|                               |                              |     |
|-------------------------------|------------------------------|-----|
| Greenfield runoff method      | FEH                          |     |
| Volume control approach       | Use Long Term Storage        |     |
|                               |                              |     |
| Qmed estimation method        | Calculate from BFI and SAAR  |     |
| BFI and SPR estimation method | Calculate from dominant HOST |     |
| HOST class                    | N/A                          |     |
| BFI / BFIHOST                 | 0.00                         |     |
| SPR / SPRHOST                 | 0.0                          |     |
| Qmed                          | N/A                          | l/s |
| Qbar / Qmed Conversion Factor | N/A                          |     |

## Hydrological characteristics

|                               | Default | Edited |    |
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| 1 in 1 year    | ---     | ---    | l/s |
| 1 in 30 years  | ---     | ---    | l/s |
| 1 in 100 years | ---     | ---    | l/s |

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## Estimated storage volumes

|                      | Default | Edited |                |
|----------------------|---------|--------|----------------|
| Interception storage | ---     | ---    | m <sup>3</sup> |
| Attenuation storage  | ---     | ---    | m <sup>3</sup> |
| Long term storage    | ---     | ---    | m <sup>3</sup> |
| Treatment storage    | ---     | ---    | m <sup>3</sup> |
| Total storage        | ---     | ---    | m <sup>3</sup> |

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