

Program details

ARTICLE NUMBER

ggu-02-004

OPERATING SYSTEM

Windows XP/Vista/7

Description

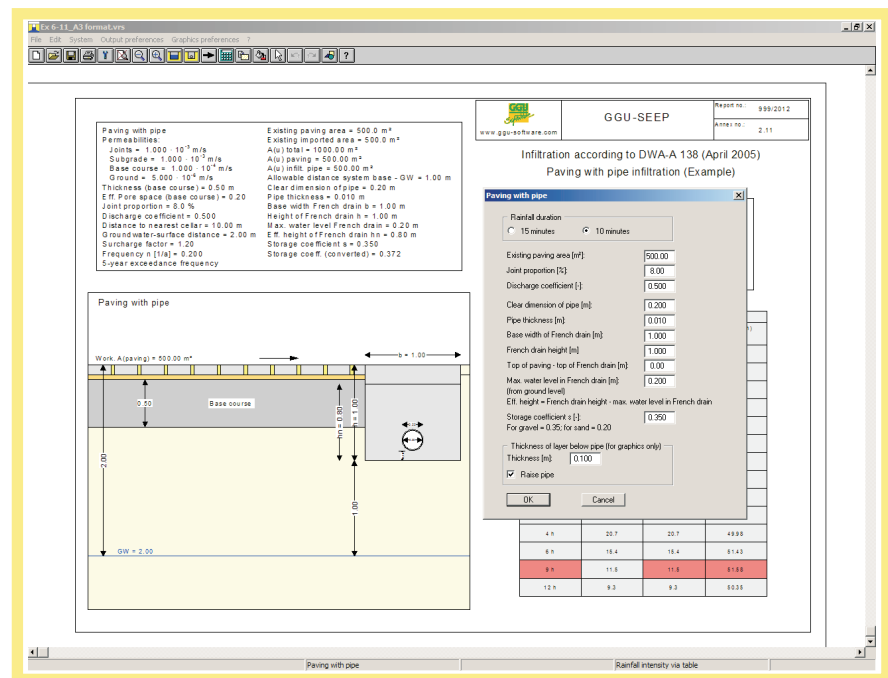
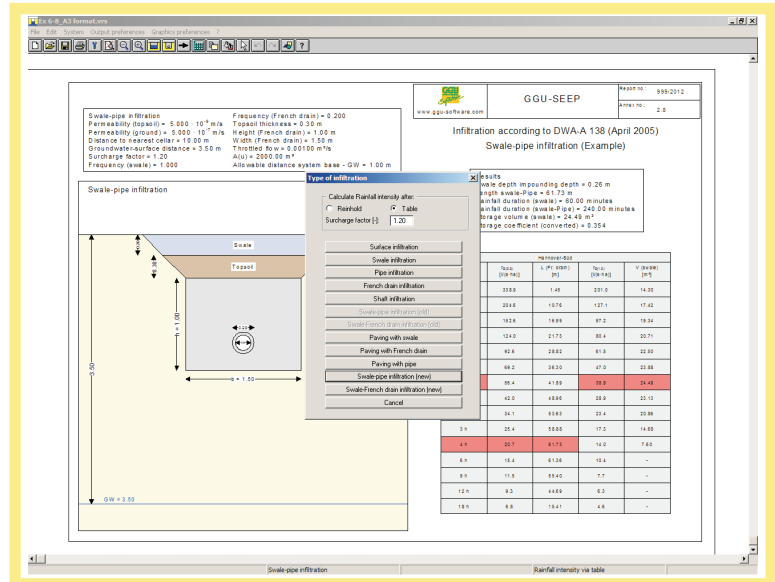
GGU-SEEP – Analysis of systems for the infiltration of precipitation run-off according to the DWA-A 138 standard (Deutsche Vereinigung für Wasserwirtschaft, Abfall und Abwasser e.V.; Planung, Bau und Betrieb von Anlagen zur Versickerung von Niederschlagswasser, April 2005).

The following systems are analysed:

- Surface infiltration
- Swale infiltration
- Pipe infiltration
- French drain infiltration
- Shaft infiltration
- Certain combinations of the above systems

Capabilities:

- Analysis using rainfall intensity tables from the KOSTRA atlas
- Draft design also using Reinhold's rainfall series
- Import of the rainfall intensity data determined using the KOSTRA atlas via a file or via the Windows clipboard
- Combination of infiltration systems compliant with DWA-A 138 (e.g. swale-pipe infiltration)
- Combination of infiltration systems compliant with DWA-A 138 with paved areas (e.g. paving with swale)
- Analysis of infiltration systems for a variety of frequencies (recurrence intervals)
- Calculation of draining times for given infiltration types
- User-defined output sheet
- Print or copy screen sections, e.g. for transfer to a word processor
- Integrated Mini-CAD system for additional annotation of graphics



Report no.: 999/2012
 Annex no.: 2.6

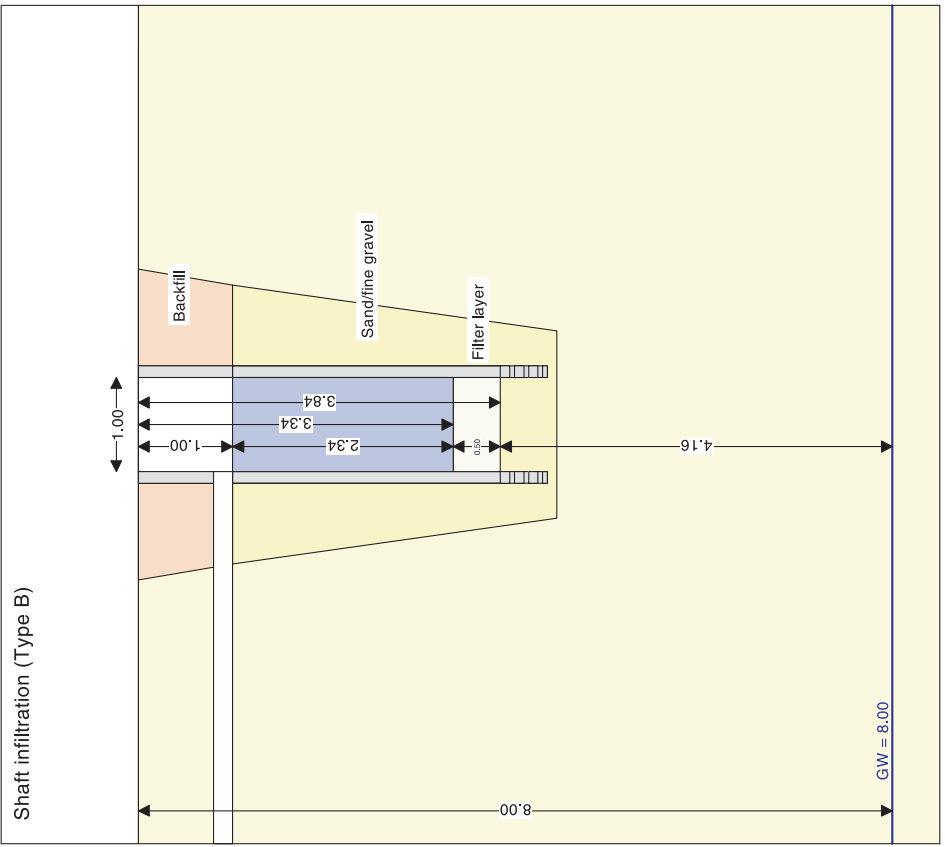
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Infiltration according to DWA-A 138 (April 2005)
 Shaft infiltration - Type B (Appendix A.2.5, Example)

Shaft infiltration (Type B)
 Permeability = $5.000 \cdot 10^{-5}$ m/s
 Distance to nearest cellar = 10.00 m
 Groundwater-surface distance = 8.00 m
 Surcharge factor = 1.20
 Frequency n [1/a] = 0.200
 5-year exceedance frequency

$A(u) = 100.00 \text{ m}^2$
 Allowable distance system base - GW = 1.00 m
 Clear dimension of shaft = 1.00 m
 Shaft wall thickness = 0.10 m
 Base of inlet = 1.00 m
 Filter layer thickness = 0.50 m



Results
 Maximum shaft water level $z_{max} = 2.34$ m
 Maximum storage volume $V_{s,max} = 1.84 \text{ m}^3$
 Req. permeability (filter layer) $\geq 3.53 \cdot 10^{-4}$ m/s
 Governing rainfall duration = 60.0 minutes
 Rainfall per unit area = 56.4 Liter/(sec·ha)

Hammer-Stud	
D	$f_{(D, z)}$ [l/(s·ha)]
5 min	338.9
10 min	204.6
15 min	152.6
20 min	124.0
30 min	92.6
45 min	69.2
60 min	56.4
90 min	42.0
2 h	34.1
3 h	25.4
4 h	20.7
6 h	15.4
9 h	11.5
12 h	9.3
18 h	6.8
24 h	5.5
48 h	3.0