

Description

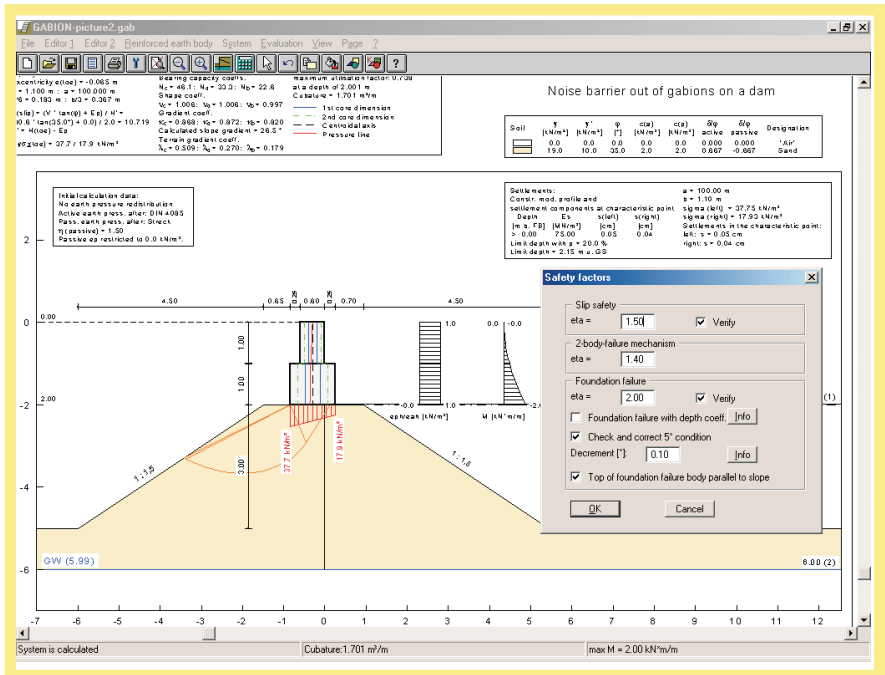
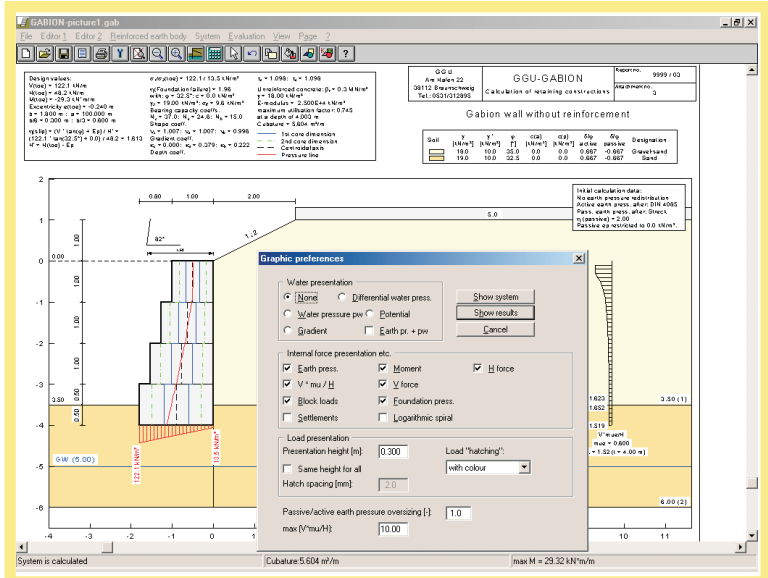
GGU-GABION - Design and analysis of gabion foundations.

The GGU-GABION program system allows the calculation and design of gabion walls and walls build by similar stackable elements. The program system allows comfortable data input. The system is displayed on the screen. Every change in data is shown on the screen, so that optimum control of input data is guaranteed. A variety of graphical presentation possibilities, to a high standard of quality, allow you to present the calculation results according to your wishes.

Currently, working group 5.9.3 of the FGSV (German Research Group for Road and Traffic Systems) is developing a paper for the calculation of gabions. This paper, to be published at the end of 2001, represents the main basis for programming. The program was developed in early 1999, in part from previously existing program modules. The program system has been tested on literature examples and in practice. No errors have been discovered. Nevertheless, a liability for completeness and correctness of the program system and the manual, and for damage resulting from any incompleteness, cannot be accepted.

Capabilities:

- Almost any kind of definition of gabion bodies
- Base inclination of the gabion body
- 50 soil layers
- 5 benches on the active side
- 5 benches on the passive side
- Calculations with active, increased active and at-rest earth pressure
- Active earth pressure coefficients, MOHR / COULOMB and user-defined values
- Passive earth pressure coefficients, MOHR / COULOMB, STRECK / WEIßENBACH, CAQUOT / KERISEL and user-defined values
- Calculation of settlements
- Calculation of external stability
- Verification of inner stability along the lines
- Comfortable interface to the slope stability program



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GGU-GABION
Calculation of retaining constructions

Wall out of concrete elements without reinforcement

Soil	γ [kN/m ³]	γ' [kN/m ³]	ϕ [°]	c(a) [kN/m ²]	c(p) [kN/m ²]	δ/ϕ active	δ/ϕ passive	Designation
1	18.0	10.0	35.0	1.0	1.0	0.667	-0.667	Sand
2	18.0	10.0	35.0	0.0	0.0	0.667	-0.667	Sand
3	19.0	10.0	27.5	5.0	5.0	0.667	-0.667	Silt

Design values:
 $V(\text{toe}) = 29.4 \text{ kN/m}$
 $H(\text{toe}) = 12.2 \text{ kN/m}$
 $M(\text{toe}) = -1.8 \text{ kN}^2/\text{m}^2$
 Eccentricity $e(\text{toe}) = -0.061 \text{ m}$
 $b = 0.700 \text{ m}$; $a = 100.000 \text{ m}$
 $b/\delta = 0.117 \text{ m}$; $b/\theta = 0.233 \text{ m}$
 $\eta(\text{slip}) = (V' \cdot \tan(\phi) + Ep) / H' = (29.4 \cdot \tan(35.0^\circ) + 0.0) / 12.2 = 1.681$
 $H' = H(\text{toe}) - Ep$

$\sigma_r/\sigma_z(\text{toe}) = 64.1 / 19.9 \text{ kN/m}^2$
 $\eta(\text{Foundation failure}) = 1.97$
 with: $\phi = 35.0^\circ$; $c = 0.0 \text{ kN/m}^2$
 $\gamma_z = 10.00 \text{ kN/m}^3$; $\sigma_{vz} = 5.5 \text{ kN/m}^2$
 Bearing capacity coeffs.
 $N_c = 46.1$; $N_q = 33.3$; $N_b = 22.6$
 Shape coeff.
 $V_c = 1.003$; $V_{\phi} = 1.003$; $v_b = 0.988$
 Gradient coeff.
 $K_s = 0.000$; $K_{\phi} = 0.356$; $K_b = 0.199$
 Depth coeff.

$\tau_c = 1.153$; $\tau_u = 1.153$
 $\gamma = 18.00 \text{ kN/m}^3$
 $E\text{-modulus} = 2.500\text{E}+4 \text{ kN/m}^2$
 Pressure line is between
 1st and 2nd core line on the earth side
 Cubature = 0.932 m³/m

.....: 1st core dimension
 - - - - -: 2nd core dimension
 - - - - -: Centroidal axis
 - - - - -: Pressure line

