

### Version 18.0

Build	Module	Description	ID
16.05.18	Design	When generating the interface file for the design with NaZwei it could happen, that the file path was read-only (installation directory) and that this caused the termination of the design.	12606
01.03.18	Analyses	For ground water levels above the foundation level, the overlying soil layers are now applied with the weighted averages of the dry and the buoyant unit weight.	12370
01.03.18	Analyses	The geotechnical analyses as well as the design can now be carried out with or without compaction earth pressure independent of each other. The size of the compaction earth pressure always depends on the relevant earth pressure approach of the corresponding analysis. It is hereby distinguished between the compaction earth pressures for active earth pressure or earth pressure at rest. For an increased active earth pressure approach, it is being interpolated between the compaction earth pressure for active earth pressure and for the earth pressure at rest.	12361
01.03.18	Analyses	The application of the compaction earth pressure as decisive loading is now also possible for the geotechnical analyses.	9218
01.03.18	Calculation	Up to 1000 circles can now simultaneously be calculated in the slip circle analysis.	11736
01.03.18	Design	The options for the analysis in the SLS could not separately be specified for multiple system variants.	9990
01.03.18	Design	In the design of the wall, the compaction earth pressure is now also considered correctly for an increased active earth pressure.	8163
01.03.18	Input	There is now a warning message displayed, if the ground inclination is greater than phi.	11630
01.03.18	Input	There is now a warning, if a ground run with varying inclinations exists although the earth pressure option "Wall friction angle = ground inclination" has been set.	11629
01.03.18	Output document	The section "Settlement analysis in the SLS" has been extended with a legend.	11784
01.03.18	Output document	The calculated values for zp and za of the compaction earth pressure are now also issued.	8186
01.03.18	User interface	There is now a warning message, if a single load or single moment is automatically removed by modifying the wall cross-section.	9997
01.03.18	Analyses	The partial safety factors for the design situations BS-T and BS-A are now provided in the options for the analysis of the safety against displacement in the limit state EQU.	11783
01.03.18	Analyses	The partial safety factors for the design situations BS-T and BS-A are now provided in the options for the analysis of the safety against displacement in the limit state EQU.	11143
01.03.18	Calculation	A stabilizing load was possibly not considered anymore in the base failure analysis.	11898
01.03.18	Calculation	A mistake in the calculation of loading onto a soil body, if the ground level is >phi and an dragging section, has been fixed.	11626
01.03.18	Design	With a combination of the design options "Design with an increased active earth pressure" and design with ""Compaction earth pressure" the program terminated during the design.	11400
01.03.18	Input	The increment has been corrected from 5.0 to 1.0 in the dialog "Generate user-defined earth pressure". Furthermore, the last entered value is now saved when leaving the dialog via "OK".	10912
01.03.18	Output document	The geometry of the slope was not issued.	11792
01.03.18	Output document	The headings of the required reinforcement amounts were incorrect in the overview of the analyses. The adding " <b>(LF BS-P(1q))</b> " was issued for the required longitudinal and shear reinforcement in the ULS and SLS.	10234
01.03.18	Output document	The text of the design situation was cut off in the tables of single loads and moments onto the wall in the record of the input.	9992
01.03.18	Output document	The relevant design situation is now stated in the caption of the base failure shell graph.	9987

Build	Module	Description	ID
01.03.18	Output document	The decisive rotation point at the bottom left corner in the analysis of the structural equilibrium was not correctly issued, if the z-direction is upward.	9420
01.03.18	User interface	The editing of polygonal elements is now made via the external application RTpoly.	11309
01.03.18	User interface	The display of the soil layer boundaries of a shifted coordinate system is now limited to the wall segment.	9978

### Version 17.0

Build	Module	Description	ID
13.04.17	Design	The calculation of the loading onto a bracket existing groundwater was incorrect. Too much weight has been applied in the consideration of the soil dead load above a bracket for inclined walls.	11246
06.04.17	General	The slip circle module has been optimized, so that the calculation time for the individual analysis could be reduced significantly. In the process, a license query had been included by mistake, which enabled leading the slip circle analysis in the program without an existing Gleitk license.	11212
10.03.17	General	Program maintenance and support	11095
10.03.17	Calculation	The load was not correctly calculated in the calculation of earth surcharge loads onto a bracket, if the rear edge of the wall above the bracket did not run vertically.	11061
10.03.17	Calculation	The earth resistance of the horizontal substitute shear joint was applied too low in the sliding analysis. A wrong partial safety factor was used for an increased active earth pressure.	9894
10.03.17	Design	A wrong partial safety factor was used in the design of the wall with the selected option "Earth pressure at rest" for a calculation with an increased active earth pressure.	9989
10.03.17	Design	Single loads onto the wall were incorrectly considered in the calculation of internal forces at a design section in the keel on the downstream side.	9431
10.03.17	Output document	The overturning analysis is initially carried out for the 1. core width (only permanent loads) and then again for the 2. core width (permanent + variable loads). Misleadingly, the two analyses had different headings. Now, the two analyses are also listed right below each other.	9653
10.03.17	Output document	The characteristic earth pressure stresses had, both for the earth pressure from permanent loads and for the total earth pressure from g and q, the same headings.	9223

### Version 16.0

Build	Module	Description	ID
05.02.16	Calculation	Revision and improvement of the numerical earth pressure calculation with the KEM-method according to CULMANN. The calculation of the earth resistance with the KEM-method (Gudehus) is no longer necessary and has been removed to improve the performance of the program.	9628
05.02.16	Design	Different earth pressure approaches can be used for the earth static and reinforced concrete analyses. Up to now, either only the same approaches as for the earth static or an approach with the earth pressure at rest could be used for the design. Additionally it is now possible to carry the design out with an arbitrary increased active earth pressure.	7329
05.02.16	General	Program modifications for the <b>compatibility with Windows 10</b> .	9523
05.02.16	User interface	In the consideration of the cohesion according to DIN 4085 the increase of minKah for a slope is now possible.	9102
05.02.16	Analyses	Was the option "strip foundation" not selected for the base failure analysis, then the shape coefficients were not considered.	9299
05.02.16	Calculation	In the earth pressure calculation according to Culmann with multiple existing construction states, the live loads from other construction states were considered although they were not even assigned to the construction state.	9280
05.02.16	Calculation	For existing live loads in load case 1 the live load was added to the permanent part of the normal force, so that the part of the live load was considered twice in the base failure analysis.	9279
05.02.16	Calculation	For the earth pressure calculation according to Culmann with a permanent load onto the ground, the part of the permanent load was applied twice.	9278
05.02.16	Calculation	Had earth layers an equal name but varying parameters, then only the parameters of one of these earth layers was committed to the slip circle analysis (all layers with the same name therefore had the same parameters).	9105
05.02.16	Calculation	Was a gamma (without buoyancy) = 10.00 specified for an earth layer, then phi = 0.0 was committed to the slip circle analysis.	9104
05.02.16	Calculation	Was a system calculated for the slip circle analysis with a live load in load case 1 and afterwards this load was transferred into load case 2 and the file was not saved before a recalculation, then Rtd was unchanged even after the recalculation.	8739
05.02.16	Input	Were design sections selected in the tree view and its properties opened from there, then the coordinates could not be edited.	9270
05.02.16	Output document	For multiple existing construction states an error message in the buckling stability analysis, which occurred in a different construction state, was issued wrongly in the result list for each variant even if this one was not affected.	9251

### Version 15.0

Build	Module	Description	ID
16.04.15	User interface	hu and ho were labeled as concrete cover in the input as well as in the output, although they are considered as reinforcement layer (reinforcement centre distance).	8852
27.02.15	Analyses	The <b>analysis of the terminated cracking under CSN EN</b> standards is performed on the basis of the general EN 1992-1-1 again, whereupon the coefficient k3 for the calculation of the crack spacing sr,max is calculated according to a change (2015) in the national annex of the CSN EN.	8819
05.02.15	Design	The selection of glass fiber reinforcement is now possible in the design.	6898
05.02.15	Output document	The graphical display of the embankment on the downstream side is now also dimensioned.	8539
05.02.15	Output document	The results for the analysis of the static equilibrium for the safety against displacement are also listed in the result preview now.	8533
05.02.15	Analyses	If an admissible stress was specified in the options for the base pressure, the analysis was performed according to the tables in the DIN anyhow.	8658
05.02.15	Analyses	The length of the foundation can either be specified as infinite (strip foundation) or with a finite length (rectangular foundation) for the base failure analysis. For strip foundations the analysis is then performed per meter of the wall. However, the loading was not converted to the real length for finite foundation lengths. Therefore, the utilization levels were many times lower and were thus on the unfavorable side.	8656
05.02.15	Analyses	Simplified analysis of spread foundation (Bearing pressure) according to Eurocode has been revised.	7895
05.02.15	Calculation	Deficient earth pressures were calculated if there was a berm in great distance from the wall on the side of the soil and the soil is cohesive at the same time, since the distributions of active earth pressure and earth pressure due to cohesion were applied from UE berm instead of UE terrain.	8557
05.02.15	Calculation	The transfer of the soil engineering standard to the slip circle analysis malfunctioned. The slip circle was always calculated according to DIN 1054:2005 independently from the standard settings in the program.	8041
05.02.15	Calculation	Problems in the calculation were caused, if a free water level on the uphill side was defined above the right ground level, whereby the right ground level lies beneath the left ground level.	7358
05.02.15	Input	Points, which are in great depth, were often added when entering polygonal earth layer boundaries. Thereby, the lowermost earth layer was extended disproportionately in the display.	8713
05.02.15	Output document	Only the results of the currently selected model were issued in the result overview for multiple system models, even if all models had been calculated.	8518

### Version 14.0

Build	Module	Description	ID
28.07.14	Calculation	Earth resistance became way too large for steep negative slopes.	8256
16.07.14	Input	The input of the extent of the ground on the left via the visibilities failed for several system variants. Now it can be additionally modified via a dimension chain.	7732
16.07.14	Calculation	The earth pressure due to the slope was peculated for an embankment.	7570
16.07.14	General	When opening the slip circle program via File -> "Start RTslope", all loads were transferred as permanent loads.	7972
23.01.14	Design	For special cases in the design it is often requested, that different partial safety factors can be considered for the earth statical analyses and the succeeding reinforced concrete design. This is required at least due to certain differences in the EC2 and EC7 and does not only affect the application of the earth pressure at rest. Because of this, the partial safety factors for the design of the wall, foundation, corbel and keel can now be preset seperately for the actions permanent, variable and earth pressure at rest for each design situation (BS-T, BS-P, and BS-A)!	7250
23.01.14	Design	The earth pressure stresses of the consolidation earth pressure can now be defined by the user (had previously been preset to 25 kN/m <sup>2</sup> ).	7070
23.01.14	Analyses	<b>Sliding analysis</b> For an inclined foundation joint according to EN standards, the Td was not converted to the inclination.	7299
23.01.14	Calculation	If the option "Consider earth pressure via soil dead load" was activated and the option "Earth pressure calculation according to Culman" was deactivated, the soil dead load was still considered.	7503
23.01.14	Calculation	Earth pressure at rest coefficient according to DIN 4085-100 was incorrect, if the wall friction angle delta was greater than the surface inclination beta.	7223
23.01.14	Calculation	Vertical, negative slopes have no longer been considered for earth pressure and earth resistance.	7216
23.01.14	Calculation	For block loads, which are on an inclined ground surface, always 100% earth pressure at rest was applied for increased active earth pressure.	6789
23.01.14	Design	The material parameters of the DIN were always used, if a standard other than DIN 1045-1:2008 had been selected. This caused, that - for instance - the wrong values were used for a user-defined material whose parameters had been changed for EN.	7529
23.01.14	Input	<b>Edit soil layer database</b> The data for delta, cohap and Es were not saved or were set to zero.	6250
23.01.14	User interface	The recent file list malfunctioned.	7504

### Version 13.0

Build	Module	Description	ID
21.06.13	Calculation	Earth pressure and earth resistance for vertical slopes and steep slopes malfunctioned.	6810
21.06.13	Calculation	Line load was staggered erroneously for an angular retaining wall.	6793
10.04.13	Calculation	The shape coefficient a (foundation length) for the base failure analysis can now be set. So far, this option was hardwired to the strip foundation.	5248
10.04.13	General	Now, the <b>release notes</b> are available in <b>English</b> .	6443
10.04.13	General	Program modifications for the <b>compatibility with Windows 8</b> .	6354
10.04.13	Output document	In the image of the base failure shell in the result list, the left ground level is displayed.	5249
10.04.13	Calculation	For certain combinations of ground, wall geometry and earth pressure options undefined stress resultants occurred in the keel.	6408
10.04.13	Design	The program no longer terminates when designing with user-defined concrete.	6205
10.04.13	General	Problems with the data path (a path length > appr. 130 characters led to an abnormal termination when opening the result list).	5508
10.04.13	User interface	Program termination when trying to edit the right earth layer dimension by right-clicking.	5522