Classic Limit Equilibrium and Stress-based Methods of Slope Analysis
SVSLOPE® represents the standard in slope stability analysis. Users can perform classic limit equilibrium slope analysis of soil or rock slopes by the method of slices or newer stress-based methods.

SIMPLY THE BEST GEOTECHNICAL STABILITY PACKAGE ON THE MARKET

The SVOFFICE™5 release of SVSLOPE® software contains the following specific improvements...

• **Triangulated Surfaces Support:** the new software supports building geometry utilizing triangulated surfaces. This improvement greatly enhances the ability of the software to represent complex geo-strata and geotechnical structures. Complex geometry can be imported from the SVDESIGNER™ software and utilized in a slope stability numerical model. These features also allow import of complex 3D geometry as AutoCAD® files or from mining packages.

• **NEW High-Performance Graphics Engine:** the new 3D CAD graphics engine provides measurably faster overall operation, with the biggest performance increases in the areas of...
  - creation and manipulation of larger, more complex models
  - quicker rotation and translation of objects
  - high quality / print-ready client visuals
  - improved CAD editing controls and responsiveness.

• **NEW SVDESIGNER™ Conceptual Modeling Software Package:** This brand new software program is tightly integrated with SVOFFICE™5/GE and allows for the representation and manipulation of complex 3D geometry and takes 3D modeling to a whole new level.

• **Re-organized Menu:** the menu system within the software has been reorganized to be more clear. Primary functions are organized in a left to right format along the menu.

• **New SVOFFICE™5/GE Manager:** the project manager dialog has been redesigned to greatly simplify its usage. Models can easily be grouped by project and stored anywhere on the user’s disk drive.

• **Support for Anisotropic Linear Models in 3D:** the Anisotropic Linear Models which have previously been implemented in the 2D package have now been extended to the three-dimensional package. The ALM 1 & 2 strength models allow the specification of weak planes in the material in order to simulate fracture zones at specific angles of the material. This strength model is ideal for the application of analysis of open pits.

Advanced searching methods are implemented to correctly determine the location of the critical slip surface. 2D or 3D analysis is possible for increased accuracy in the calculation of the factor of safety. Advanced probabilistic analysis (2D only) or accommodation of spatial variation (2D only) is possible with the software. SVSLOPE® can be combined with SVFLUX™ to import pore-water pressures or SVSOLID™ to import soil stress conditions.

The software can be utilized for geotechnical, civil, or mining engineering projects.

Our limit equilibrium slope stability package has proven popular with our clients. As such it has continued to receive development efforts from our team and we are pleased to present a number of features which solidify the software’s position as the best geotechnical stability package on the market.

SVSLOPE® represents the standard in slope stability analysis. Users can perform classic limit equilibrium slope analysis by the method of slices or newer stress-based methods. Advanced searching methods are implemented to correctly determine the correct location of the critical slip surface.

“This new software for stability analysis includes a number of state-of-the-art options for probabilistic slope stability analysis. This feature, combined with comprehensive deterministic analyses, will provide new opportunities to build confidence in the results of a site-specific analysis.”

Prof. Dirk van Zyl, Ph.D., P.E.
Professor of Mine Life Cycle Systems
University of British Columbia
New in SVOFFICE™5 is the tight integration with SVDESIGNER™ conceptual modeling software and the subsequent abilities to represent complex models built from triangulated surfaces (TINS) as well as grids. A new graphics engine also greatly speeds the creation of complex models and the visualization of results.

SVSLOPE® is characterized by an advanced probability analysis as well as integration with other packages in SVOFFICE™5. The streamlined user interface and advanced slip surface searching algorithms make for fast model setup and computation times.

We have put extensive effort into verifying SVSLOPE® against classic case-study scenarios and existing slope stability software packages such as Clara/W. Some original interface concepts were inspired by Clara/W and have been implemented in SVSLOPE® in order to provide continuity of use. The team at SoilVision Systems Ltd. represents an advanced group of geotechnical engineers and software developers with M.Sc. and Ph.D. degrees and decades of experience which ensures that your modeling will be successful and reliable. This allows users to be confident that results from SVSLOPE® are correct.

SVSLOPE® is currently being used on world-class slope stability projects. Top slope stability industry experts already support the use of SVSLOPE® as the new standard in slope stability modeling.
Key features and capabilities of SVSLOPE®

- Slope stability analysis in both two and three dimensions
- Creation of complex 3D models with SVDESIGNER™ conceptual model builder
- Creation of models from triangulated surfaces (TINS)
- Advanced critical slip surface searching algorithms including dynamic programming and Greco search methods
- Forward or back-analysis of anchors in 2D or 3D
- Spatial variability (2D only) of material properties aids in improving the calculation of factors of safety
- New finite element based slope stability methods
- Advanced stochastic analysis such as Monte Carlo, Latin Hypercube, and the Alternative Point Estimation Method (APEM) allow the end-user to determine normal distributions of the factor of safety as well as the probability of failure
- Easily generate 3D models from 2D cross-sections, or slice 3D models into 2D cross-sections
- Coupled unsaturated steady-state or transient seepage analysis is available when coupled with SVFLUX™
- One- or two-way sensitivity analysis (2D only) allows the generation of a contoured surface of the factor of safety based on the relationship between two input variables
- Simple and powerful user interface allows rapid creation of effective models
- 14 different analysis methods including classic method of slices such as Bishop, Janbu, Spencer, Morgenstern-Price, GLE, and others
- Support for over 20 different soil strength models including Mohr-Coulomb, Hoek-Brown, Undrained, Anisotropic, Bilinear, Frictional-Undrained, ALM1/ALM2 and four unsaturated shear strength strength models
- Multiple unsaturated soil strength models allow for more extensive analysis of unsaturated soil conditions
- Extensive support for reinforced slopes
- Support for the Hong Kong soil nail equation
- Representation of dry or wet tension cracks
- Support for entry of the vertical side shear resistance
- Extensive QAQC program

Peter Brett Associates have been looking to update our existing slope stability software over the last year. After extensive research and trials, SVSLOPE® developed by SoilVision Systems Ltd, was found to meet all our existing and future design requirements. Its ease of use for modelling simple as well as complex geological and geometrical problems was a critical factor in our assessment as well as the incorporation of design to the Eurocodes. Their customer support has been faultless and their willingness to develop the software to meet our own specific design requirements is a most gratifying added bonus.

We love the fact that SVSLOPE® is part of an integrated suite of software and that, if required, 3D analysis can be undertaken. We would recommend this product to other geotechnical consulting firms.

Asmi Desai
Principal Engineer
Peter Brett Associates LLP
Common Applications

The following list is a collection of the most common applications for SVSLOPE®. Most of these are demonstrated as downloadable sample models from the cloud.

- Open pit mining slope stability analysis of rock sidewalls in 2D or full 3D to determine a more rigorous calculation of the factor of safety.
- Analyze the effect of climatic events on the factor of safety with SVSLOPE® and SVFLUX™
- Analyze rapid drawdown of reservoir levels by combining SVSLOPE® and SVFLUX™
- Analyze weak-layer non-circular slip surfaces more effectively with the dynamic programming methodology
- Model waste rock pile stability and couple with SVFLUX™ to incorporate climatic effects
- Incorporate the effect of pore-water pressures into your models by coupling with SVFLUX™
- Perform probabilistic analyses by entering input parameters in terms of means and standard deviations
- Design of heap leach pad drainage systems. Model preferential flow by coupling your model with SVFLUX™
- Design of retaining walls and reinforcements
- Analysis of soil nail walls
- Model the stability of mine sites and mine tailings
- Determine slope bearing capacities
- Determine the effect of tension cracks on slope stability
- Stability analysis of reinforced and unreinforced earth slopes with and without seepage forces

“I’m excited to see the release of this new and innovative product. I look forward to and encourage the application of this software on additional geotechnical projects.”

Prof. Ward Wilson, Ph.D., P.Eng.
Mining Chair
University of British Columbia
THE MOST VERSATILE SUITE OF GEOTECHNICAL AND HYDROGEOLOGICAL MULTI-DIMENSIONAL ANALYSIS TOOLS WE HAVE EVER DEVELOPED.

WE HAVE REDEFINED THE “NEW” STANDARD... AGAIN.

EXCITING NEW FEATURES!
SVOFFICE™ 5 introduces new features, speed, precision and functionality that have not been available in any other geotechnical analysis software until now.

SVOFFICE™ 5 boasts a completely new Manager with “Learning” and “Expert” user modes to get you up and running even faster; a completely reimagined and modern Soil Properties database application; a new user friendly 3D model geometry builder and visualizer... SVDESIGNER™; improved user interface for a more intuitive streamlined workflow; an entirely new graphics subsystem to handle more complex geometry, speed up workflows and allow for high resolution output of visuals.

What we haven’t changed is our commitment to keep developing leading-edge software at a breakneck pace, exceptional technical support and user training.