Settle3D 2.0

Settlement and consolidation analysis

Rocscience *software tools for rock and soil*

Settle3D is a 3-dimensional program for the analysis of consolidation and settlement under foundations, embankments and surface loads. Settle3D combines the simplicity of one-dimensional analysis with the power and visualization capabilities of more sophisticated three-dimensional programs.

Settlement Analysis

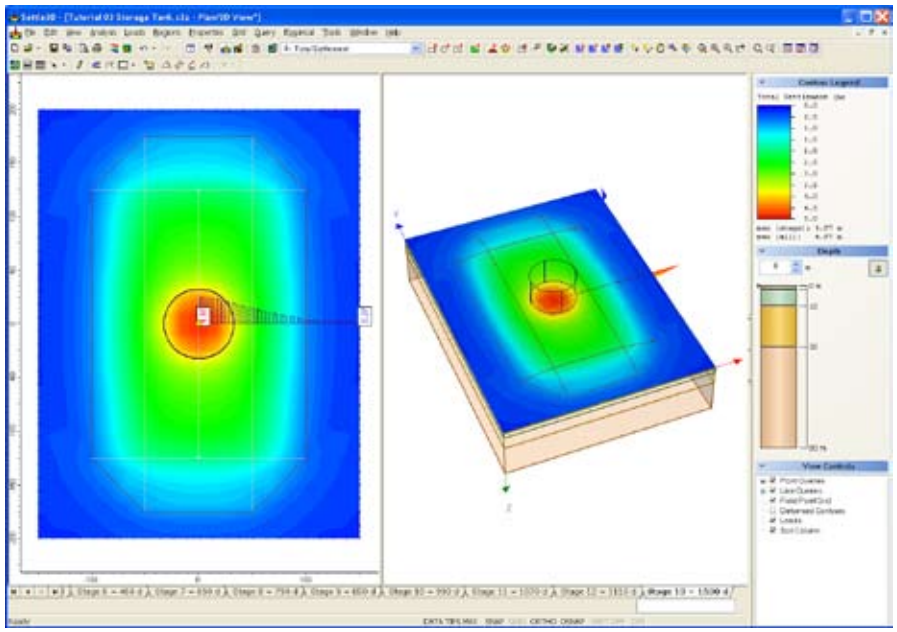
Settle3D is a new program for the calculation of vertical settlement under surface loads. You can quickly create complex soil profiles and loading conditions, and view results in 3-dimensions. Modeling can be staged, and time-dependent consolidation analysis can be performed including primary and secondary consolidation (creep) at user defined time intervals. Back analysis options allow you to determine the load or time required to achieve a given settlement.

Loading

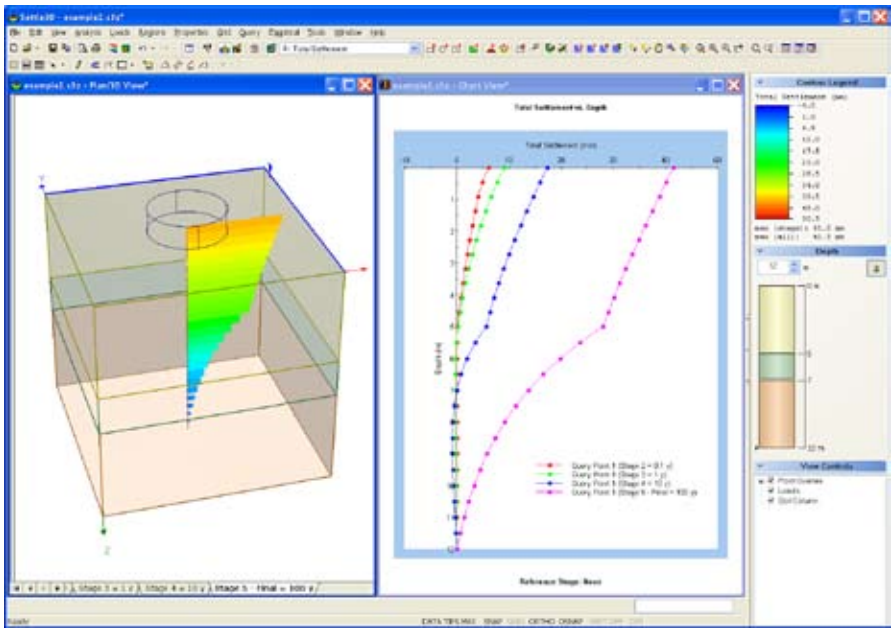
Circular, rectangular or polygonal load shapes can be defined with uniform or variable load magnitudes, and flexible or rigid foundations. Loading can be staged and applied at any depth (e.g. to simulate piles or raft foundations). Excavations can be defined and loads applied within excavated areas. A special embankment designer allows you to easily define multi-stage layered embankments. A new multi-layer stress method accounts for the effect of layer stiffness on stress distribution.

Data Interpretation

Settlement, stress and pore pressure are computed throughout the 3-dimensional volume, and results can be contoured along any horizontal or vertical plane, or plotted along any line. Settlement deformation can be viewed in 3-dimensions, magnified by a user-defined scale factor. Data presentation is highly interactive, and contours and graphs are updated in real time as you change the data type, depth or location. Results can be exported to Excel with a single mouse click.



Settlement contours underneath storage tank on embankment. Plan view (left) and 3D view (right).



Total settlement under middle of circular load. Graph illustrates time-dependent consolidation after 0.1, 1, 10 and 100 years.

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Technical Specifications

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Modeling

- interactive editing
- right click shortcuts
- easily define arcs and circles
- import / export in DXF format
- grid / vertex / object snapping
- interactive sidebar
- depth control
- undo / redo
- metric or imperial units
- data tips

Analysis

- horizontal soil layers
- multiple layers / soil types
- multiple loads
- multi-stage analysis
- time-dependent consolidation based on Terzaghi theory
- immediate, primary and secondary consolidation (creep)
- hydro-consolidation

Material Types

- linear elastic
- non-linear
- Janbu
- Koppejan
- collapsible soil
- variable with depth
- database of typical properties

Loading

- rectangle, circle, polygon
- embankment
- excavation
- uniform or variable
- flexible or rigid
- staged loading
- pre-load
- conical loads

Stress Computation Method

- Multiple Layer
- Boussinesq
- 2:1

Groundwater

- staged water table elevation
- horizontal drainage
- wick drain regions

Compute

- field point grid
- line query
- point query
- back analysis using preload or time point query

Empirical Methods

- Schmertmann
- Peck, Hanson, Thornburn
- Schultze and Sherif
- D'Appolonia

Contour Data

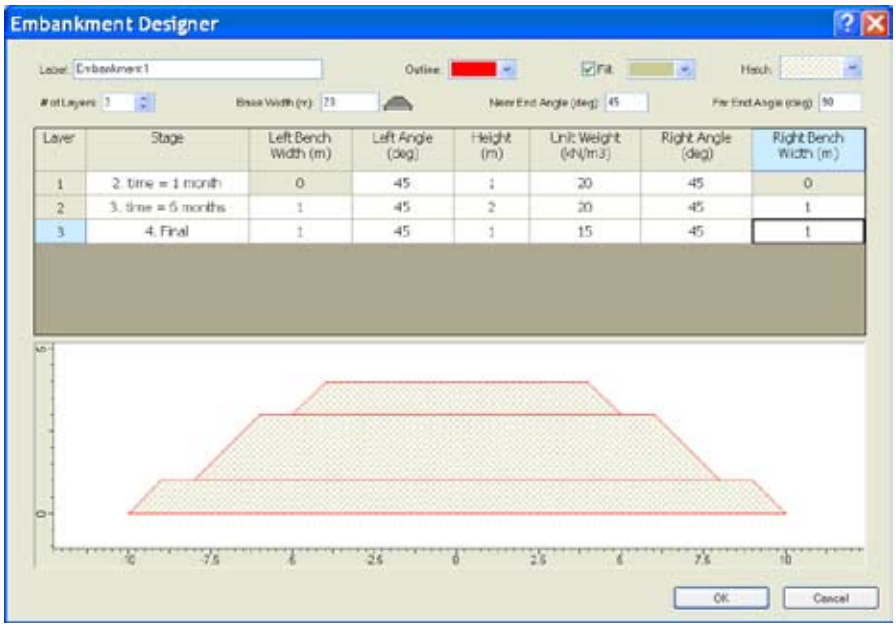
- total settlement
- immediate settlement
- consolidation settlement
- secondary consolidation
- total stress
- loading stress
- effective stress
- pore pressure
- excess pore pressure

Visualization

- plan view / 3D view
- plot contours on horizontal or vertical planes
- plot results on vertical or horizontal lines
- plot multiple stages, times or locations on one graph
- animate / rotate 3D view
- isosurfaces

Export

- one click export of data and charts to Excel
- copy to clipboard
- export image files
- flexible report generation with dynamic Info Viewer
- drawing, annotation and dimensioning toolkit
- customize / save view options



Embankment designer in *Settle3D*

Price & Licensing

Settle3D 2.0 is sold as single licenses, which are purchased outright, for $1,295 US ($1,555 CDN).

Network licenses are also available; they are sold as a yearly subscription, with price based on the number of concurrent users. Please contact software@rocscience.com for more information.

www.rocscience.com