

EARTHWORK / VOLUME CALCULATION



FOR THE CONSTRUCTION SURVEYOR, ENGINEER, PROJECT MANAGER AND COST MANAGER, WHEN CONFIDENCE IN THE ACCURACY OF QUANTITY CALCULATIONS IS PARAMOUNT.

IT PROVIDES INFORMATION CRITICAL TO COST AND MATERIAL MANAGEMENT, ON THE PROJECT.

12d Model Understands This Important Requirement And Has Developed The Earthworks / Volumes Option To Cover All Requirements On Site.

The 12d Model Base option is the tool for generating Digital Terrain Models (12d Model TIN s).

The TIN's provide the 3 dimensional surfaces for both visualisation and volume calculations.

The TIN's are traditionally built from the design surface model and the existing or natural surface surveyed data (option Survey)

The Tin Model Provides The User With Many Options For Volume Calculations

- ✓ 2d or 3d data can be draped onto a TIN to match the model levels.
- ✓ TIN's can be adjusted vertically to provide additional layers (sub-grade or Bore log depths)

In Addition to the TIN option for surfaces 12d Model is string based this allows cross sections to be cut through the design model at any location required.



PROVIDES CONFIDENCE AND FLEXIBILITY THROUGH MULTIPLE CALCULATION OPTIONS

Flexibility

The 12d Model Volume option provides the user multiple option methods to calculate, cross check and validate quantities.

Calculation Methods include;-

- ✓ **The Exact Method.** This method provides the exact volume between surfaces.
- ✓ **The End Area Method.** This method uses the traditional end area to calculate the volume and sectional data can be cut by multiple methods, including along an alignment, between nominated points or cardinal to the screen view. Section intervals are user definable
- ✓ In both the above methods **volumes can be calculated to nominated depths or the user can prepare the unique 12d Range file** to provide volumes within various depth ranges to a surface or level. This option is invaluable for material management.

The above options and more are available to the user to ensure cost and material management is maximised

Confidence

12d Model users have confidence with volume calculation results.

Through visual observation using the unique 12d Model interactive views, anomalies (level spikes) can be viewed through the interaction of the plan, section or perspective views.

This combined with the multiple calculation option provides users the ability to cross check with the **Earthworks/ Volumes module option.**

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Earthworks And The Volume Option.

Simple fast and efficient project or site material management is the key to for managing material movement and costs.

Use 12d Model Earthworks/Volume option to measure, manage and cost.

- ✓ Confirm volumes during the tender phase (subject to surface models provided)
- ✓ Material stockpile measurement
- ✓ Manage unsuitable material measurement at the source
- ✓ Quantify topsoil layers both pre construction and in stockpile after removal
- ✓ Bulk earthwork quantity measurement
- ✓ Pavement material measurement
- ✓ Input bole log depths and manage material layer measure.
- ✓ Utilise volumes and surface tins to build mass haul diagrams for earthworks planning with 12d Models new **Mass Haul Analyser**

The Volume Option is proven to enhance the surveyor and engineers management of earthwork and pavement material quickly, efficiently and with confidence.

12d®Earthworks/Volumes Is A Module Of The 12d®Model™ Suite.

12d®Solutions has developed a complete and integrated product for the industry. Surveyors and engineers now have a complete solution at their disposal.

The core functionality of 12d Model is in the powerful BASE module. Optional modules can be included for the following areas:

- ✓ Road & Rail Design
- ✓ Utilities & Urban Drainage
- ✓ Flood Modelling
- ✓ Survey
- ✓ Field (12d Survey Required)
- ✓ Data Exchange
- ✓ Visualisation

High Quality, Responsive Local Support.

Support is provided by someone who knows the industry, the type of work you do and your clients requirements.

All support personnel are expert 12d Model operators, have industry experience and are able to provide practical, relevant solutions to technical problems.



WHY CHOOSE 12D?

- ✓ Powerful data processing & intelligent functionality.
- ✓ Modular, easy to update & completely customisable.
- ✓ Seamless integration with major industry software & hardware.
- ✓ Used in over 55 countries worldwide.
- ✓ Friendly support & training from industry experts.

