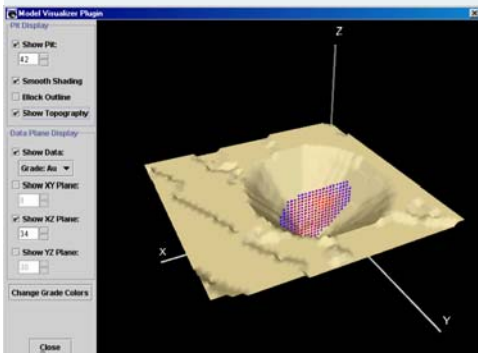


# WHITTLE: FOUNDATION

## START WITH A STRONG FOUNDATION

### OVERVIEW:

Whittle is a suite of strategic mine planning tools designed for professional mine planners. Foundation is the core of the Whittle range, rich in features on its own, yet ready to accept a growing range of modules which extend and enhance its capabilities. Professional mine planners can start with Foundation and add modules as their requirements grow. This information sheet describes the features of Foundation.



### FOUNDATION FEATURES

The system is designed for total integration, so the look and feel, data manipulation, the help files and the integrity of the system are all seamless and internally managed with the outstanding levels of quality that you have come to expect from Whittle. Underpinned by the latest design in GUIs known as the Proteus Environment<sup>®</sup>, Foundation enables users to rapidly and easily import, manipulate and visualise resource models, build pit slope, operational and economic models and optimise pit shapes. Users can run three types of life-of-mine schedules including benchmark schedules and graphically analyse the results.

### DATA IMPORTATION

The system accepts data in the industry standard Whittle format. Resource model files are imported, with or without a Parameters File. On completion of importation, a detailed grade and tonnage is provided to assist in reconciliation processes. Three dimensional interactive visualization aids is an invaluable tool for examining the ore body structure.

### MODEL MANIPULATION

The system can transform block models, using a broad range of operation. Models can be extended, truncated, merged, and split. Global changes can be made to element data and complex equations can be used to write positional variables into the model.

### PIT SLOPE MODELLING

The system provides the most comprehensive and flexible slope modelling system available for pit optimization. Pit slope definitions are defined for the whole model in a variety of flexible ways. Simple rectangular regions can be used, or alternatively, any shape slope region can be used by assigning slope profiles to individual blocks. Up to fifty slope profiles are defined with each profile consisting of up to eight bearing / slope pairs. Profiles are then assigned to different parts of the block model, with total flexibility in the definition of slope region shapes.

### PIT OPTIMISATION

Pit optimisation is carried out by a Whittle implementation of the well known Lerchs Grossmann algorithm. The pit optimisation function permits:

- Very simple or very complex pit slope modelling, including the application of userdefined "additional arcs", to represent irregular contiguous structures.
- Easy user definition of expensive blocks. Expensive blocks are used to represent lease boundaries or immovable objects such as processing plants, which cannot be under-mined.
- Price, cost and processing models can be as simple or as complex as the user requires. Expressions can be used to make costs and prices vary with position in the model and/or grade, or in response to a broad range of special functions and operators.

Pit optimization is controlled by a range of userdefined settings, which affect the precise manner in which the optimization proceeds. Up to 100 optimal pit outlines are produced in a single run. These are used as the basis for pit and push-back designs and for a range of sensitivity, risk and "what-if" analysis.

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To find out more about how your operation can benefit from Whittle's Foundation, contact us at [info@gemcomsoftware.com](mailto:info@gemcomsoftware.com), or visit our web site at [www.gemcomsoftware.com](http://www.gemcomsoftware.com).

### ECONOMIC SCENARIOS

The user sets the base case for scheduling and analysis, including costs, prices, throughput limits, recoveries etc. Mine planners can apply the same settings used in the pit optimization or modify them in order to apply special analysis techniques. The vast majority of the settings in the Economic Scenario can be changed over time, adding to the sophistication of the model.

### ANALYSIS AND GRAPHS

The user specifies the use of three different life-of-mine scheduling techniques, and view graphs of the results, or export data for spreadsheet analysis. Each analysis generates a comprehensive report, outlining all the assumptions and settings, and the details of all the life of mine schedules produced.

### DATA EXPORT

A large range of data and reports can be exported or printed such as Audit reports for each model import, block models, schedules, pit outlines, and analysis data.

### DATA VISUALISATION

The system incorporates an interactive 3D viewer for instant visual examination of block models, pit outlines, push-backs and mining schedules.

