

Ground Surfaces and Grid Mesh

Introduction

The ground surface elevation is stored with each Site Map Symbol. Additional ground surface data, including other surveyed points not related to a Site Id, can be added to the project. All ground surface data points can then be used to create a contoured ground surface. This contoured ground surface can be saved as a ground surface grid mesh, which can be displayed on cross-sections.

GIS\Utility - Ground Control Menu

Ground - Gets ground elevation data and displays on basemap;

Add - Adds ground control symbols (points) onto the basemap;

Edit - Edits existing ground control symbols;

Delete - Deletes existing ground control symbols;

On - Turns on ground surface elevations;

Off - Turns off ground surface elevations.

Extracting Elevation Data from a Line

If elevation data is represented as a line (e.g., a lake boundary, a topographic line) the elevation must first be extracted into multiple ground control points that represent the elevation of the line. To set and extract the elevation of a line:

1. Type "change" at the AutoCAD command line, then select the line;
2. At the prompts, select Properties, Elevation, and specify the new elevation. Be sure to properly exit the command (i.e., keep following the prompts);
3. From the menu, select GIS\Contour - Contour Utilities - Extract Plines;
4. Save the file in the Project\Surface directory with an appropriate name (with a .qs extension).

Creating a Ground Surface Grid Mesh

To combine all the ground surface data into a grid mesh file (to be used for display on cross-sections):

1. Select GIS\Utility - Ground Control - Get Data
2. Click Yes if you want to combine your ground control data with an existing file (e.g. an extracted pline). Then select the appropriate file. Click Apply. This displays all your ground surface data.

3. Select GIS\Contour - Contour
 - Click the Contour button.
 - Click the “Show” button.
4. Execute Contour again.
5. Select Grid Mesh, Click the “Draw” button.
6. Grid meshes use a lot of memory. It is important, therefore, to archive the ground surface grid mesh for future use. To archive the ground surface grid mesh, select GIS\Contour - Contour Utilities - Archive Grid. Save it as “ground.msh” in your project\surface directory.