

Digitizing Elevation Points in Google Earth & Contouring Them in RockWorks

12/13/24/JPR

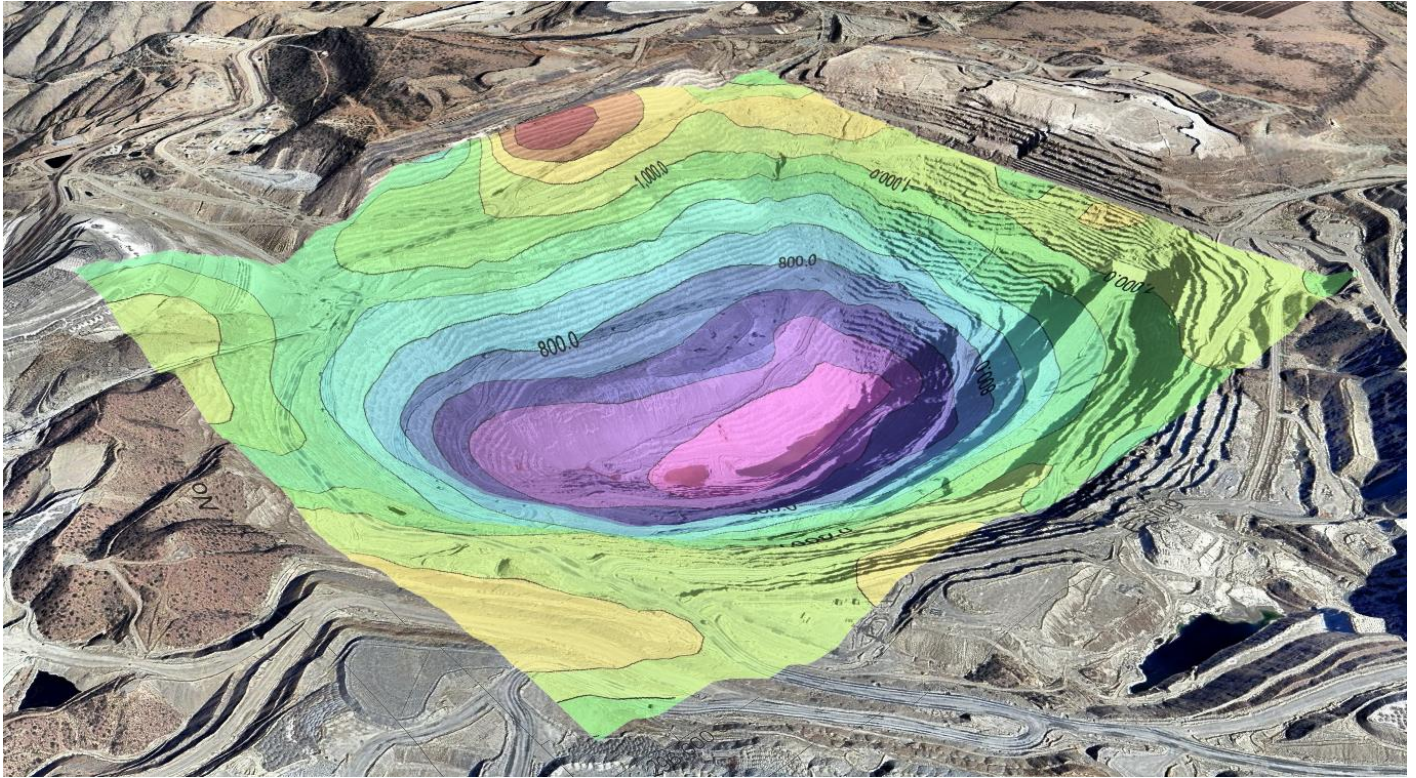


Figure 1

Introduction

This tutorial will show how to digitize elevation points from Google Earth, import them into RockWorks, and contour them.

- Launch Google Earth, expand the *Places* group (Figure 2), right-click on *My Places*, and select the *Add Folder* option.

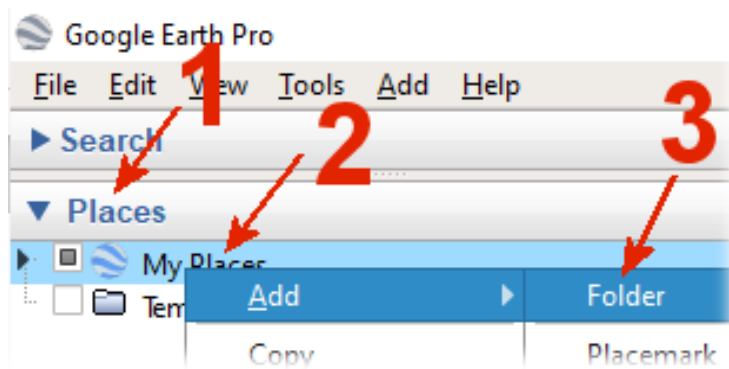


Figure 2

- Enter "Points" as the Name within the New Folder dialog (Figure 3).

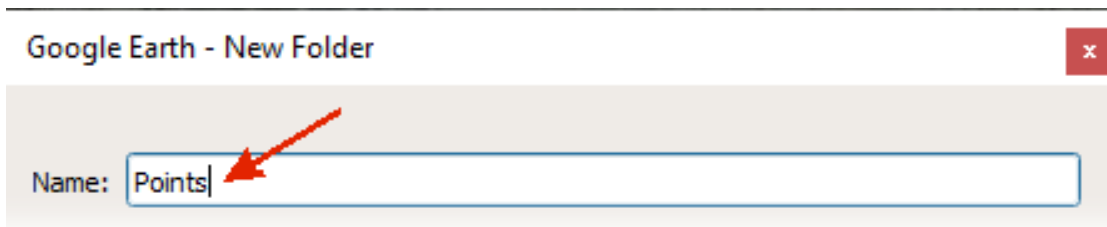


Figure 3

- Zoom into the area of interest within Google Earth and make sure that the Terrain option (Figure 4) is enabled.

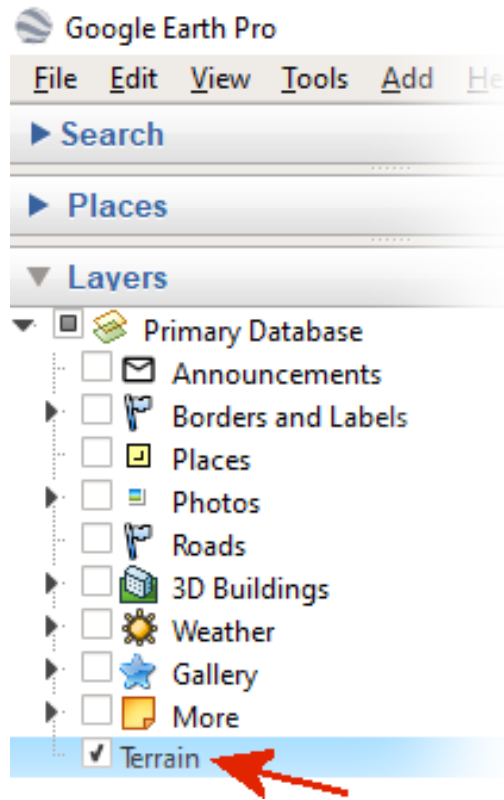


Figure 4

- Click on the Add Placemark icon (Figure 5).

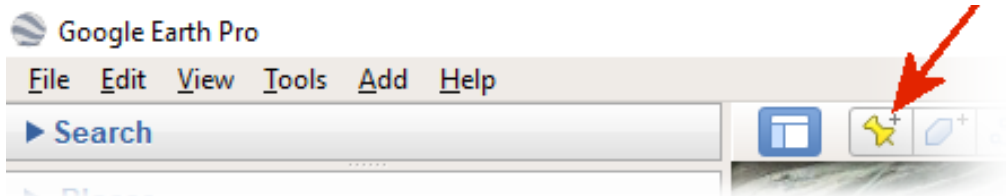


Figure 5

- Click the pushpin icon (Figure 6) within the upper-right corner of the New Placemark dialog.

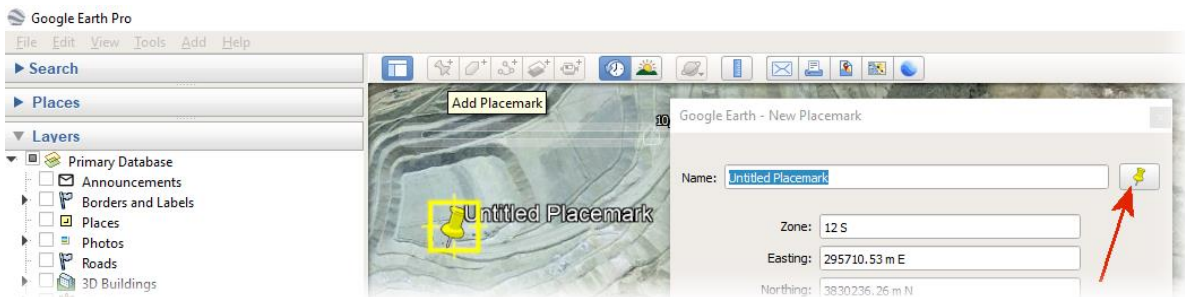


Figure 6

- Change the default icon to the small black circle (Figure 7) with a dot in the center because the default push-pin icon is obnoxious.

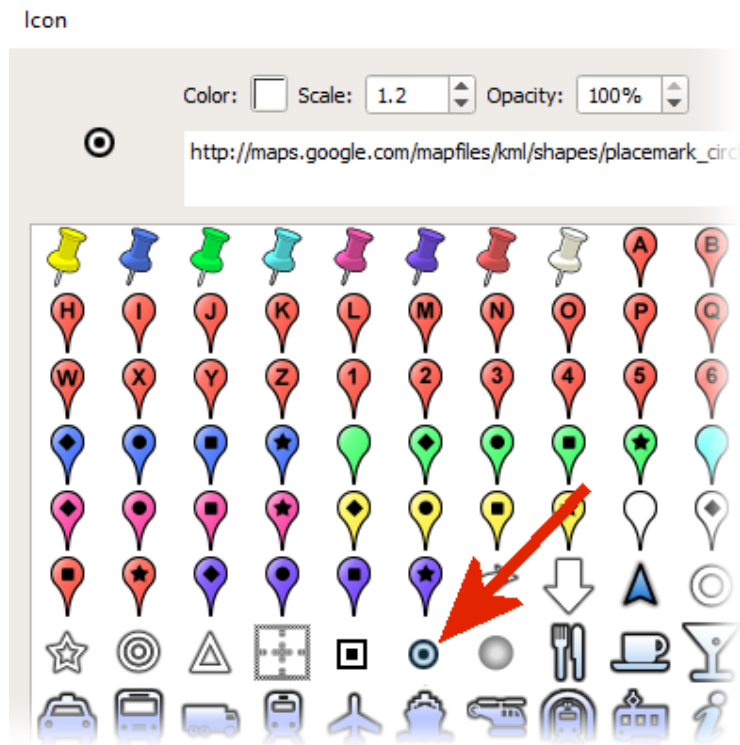


Figure 7

- Notice how the *elev* (elevation) number within the lower-right corner (Figure 8) changes as you move the *Placemark*. This is the number that we'll be using for the *Placemark Name*.



Figure 8

- Next, right click on the Points folder within the Places group (Figure 11) and select the Copy option. All of your points will now be copied into the Windows clipboard.

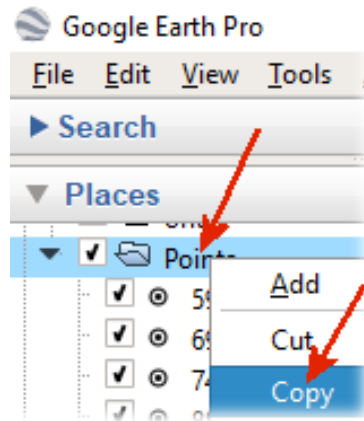


Figure 11

- Launch RockWorks and select the *Datasheet / File / Import / Google Earth / XYZ Import* program (Figure 12).

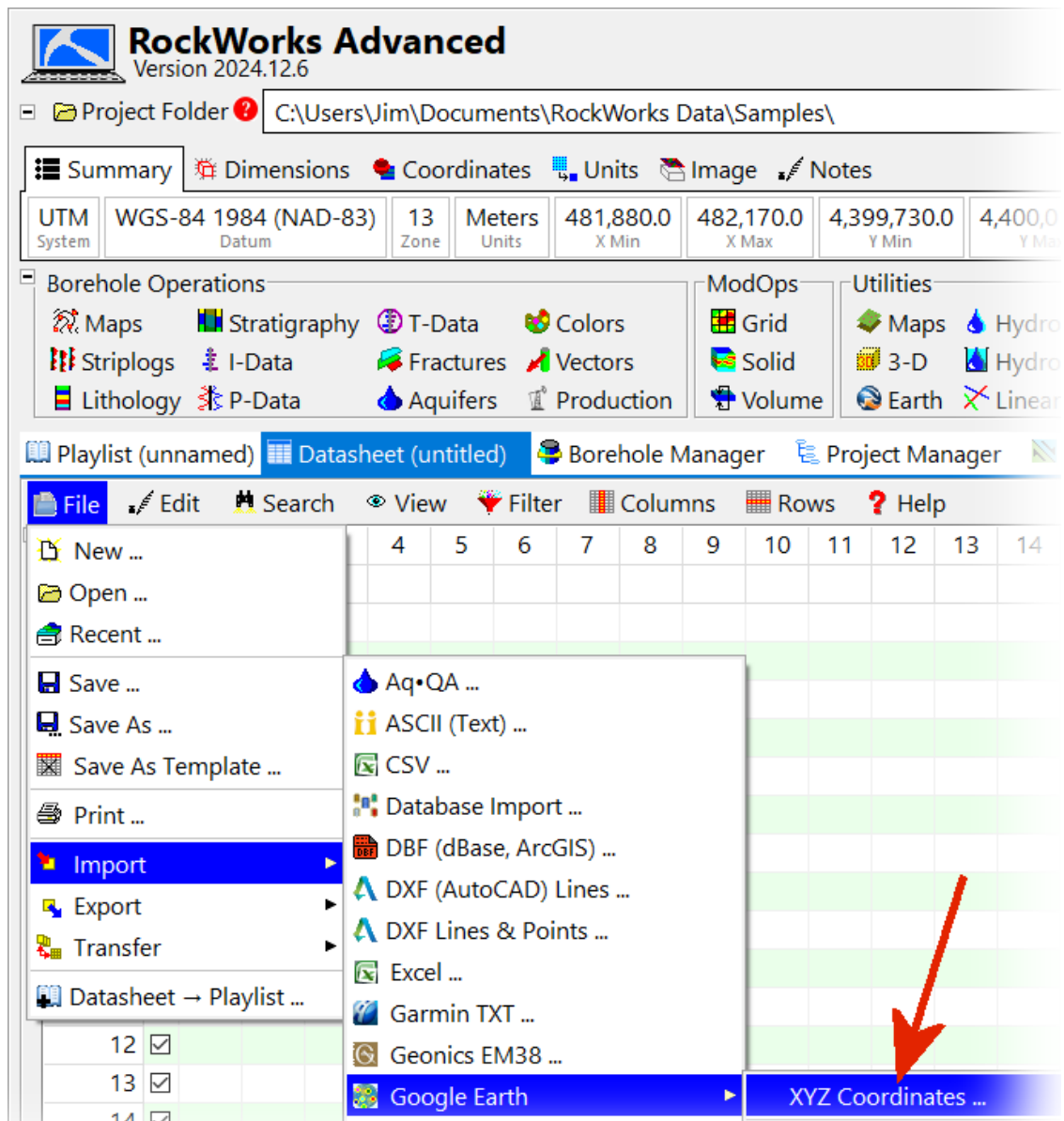


Figure 12

- Configure the *Extract XYZ Coordinates From Google Earth* menu (Figure 13) as follows;
 1. Set the *Input* to the *Windows Clipboard*.
 2. Select the *Horizontal (XY) Coordinate* system that Google Earth was configured for. In this example, Google Earth was configured for UTM's.
 3. If Google Earth was configured for UTM's, then set the *UTM Zone*. Note: The *UTM Zone* within Google Earth is displayed within the lower-right corner of the screen (Figure 14–1), however there is a cosmetic bug in Google Earth in which the northern hemisphere is labeled “S” (Figure 14–2) while the southern hemisphere is labeled “N”.
 4. As with the UTM Zone, the *Vertical Units* are indicated within the lower-right corner of the Google Earth screen (Figure 13–3).

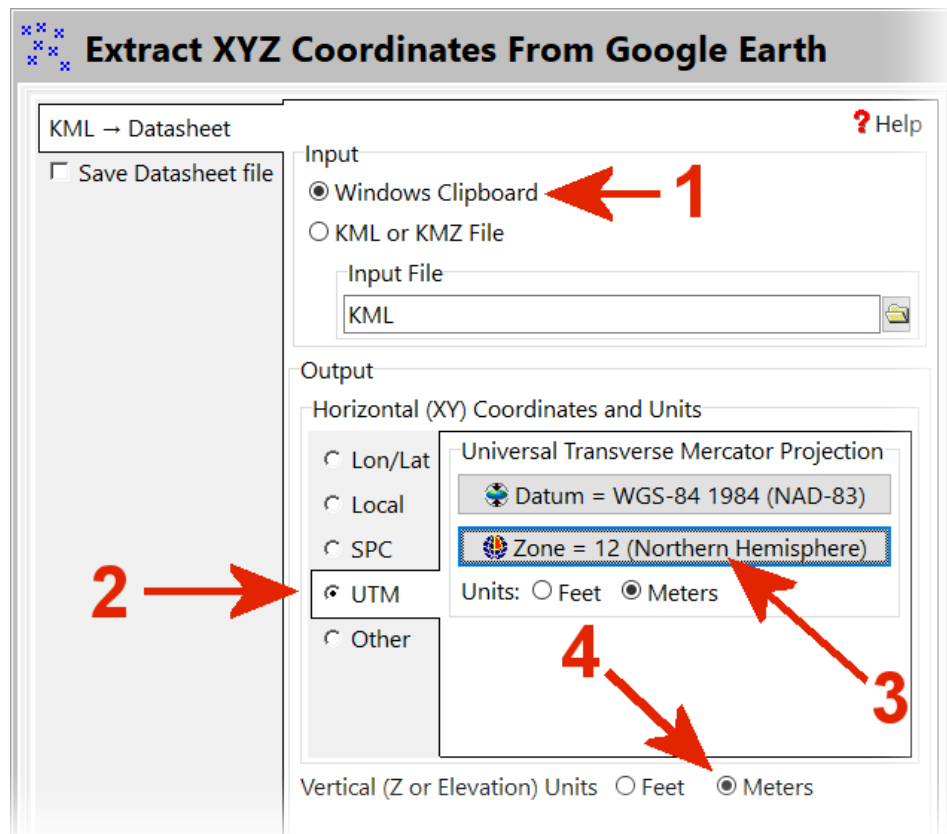


Figure 13



Figure 14

- Click the *Continue* button and the program will import the data into the *RockWorks Datasheet*. If your *RockWorks Project* was configured for a different coordinate system, the XY coordinates will be automatically converted to that system. Once the data has been imported, you will be prompted to *Update Project Dimensions* (Figure 15). Select the *No* button because we'll need to make some changes first as a workaround for the previously-mentioned Google Earth bug.

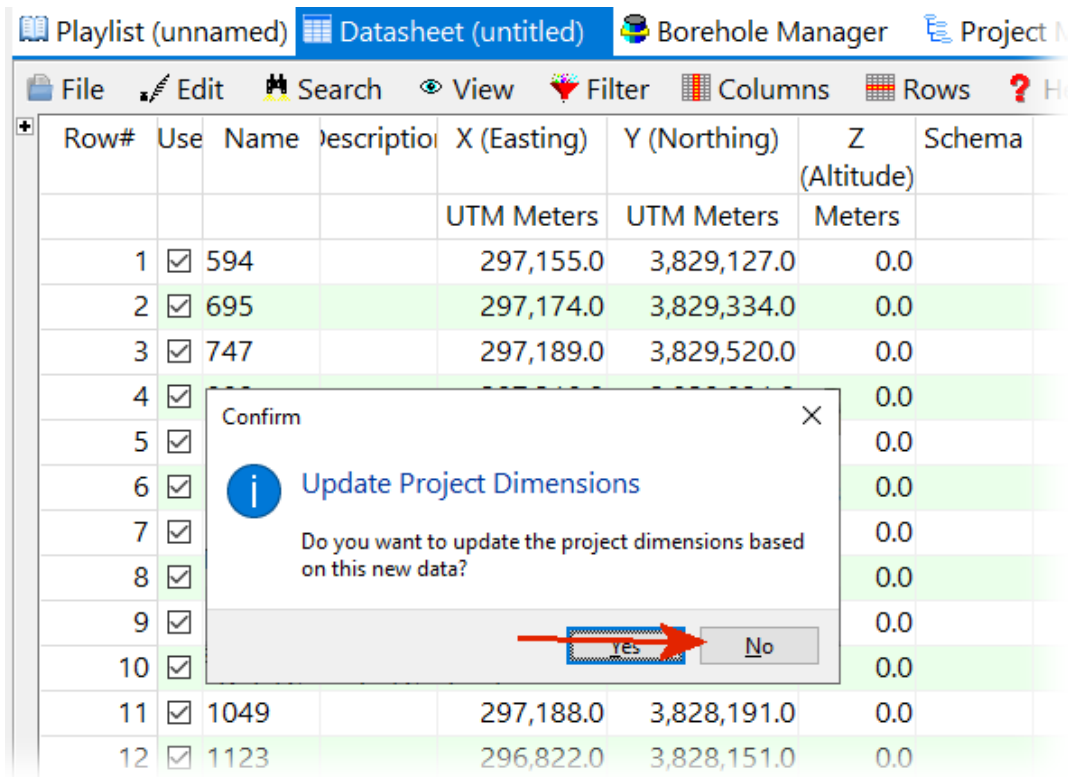


Figure 15

- Select the *Datasheet / Columns / Delete Column* option (Figure 16) and delete the column titled "Z (Altitude)". We're doing this to avoid confusion with the real elevation which is contained within the column titled "Name".

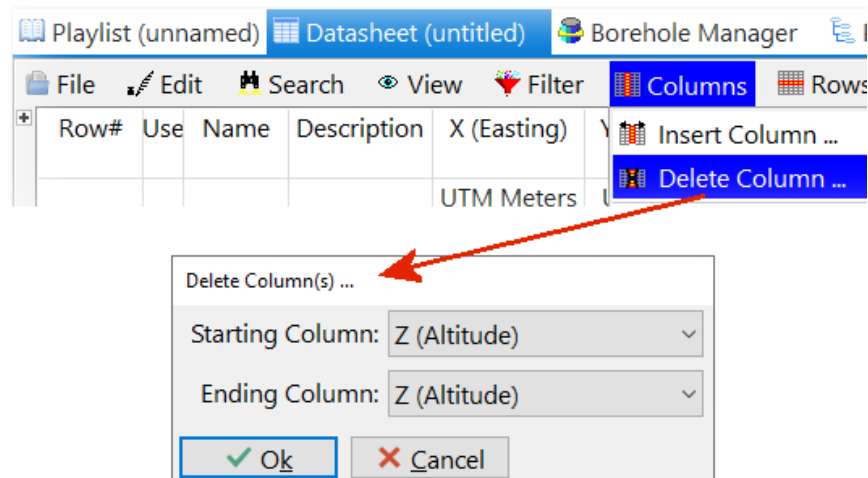


Figure 16

- Right-click on the “Name” column and select the *Column Properties* option (Figure 17).

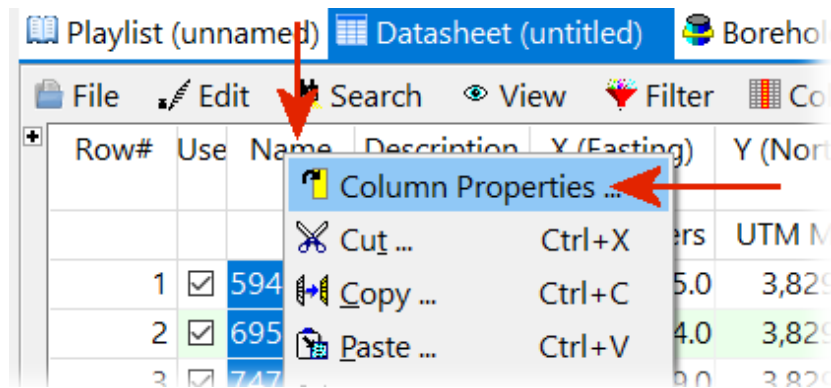


Figure 17

- The *Datasheet Setup* options (Figure 18-1) will now appear along the right edge of the *Datasheet* page.
 - As shown in Figure 18-2, change the *Data Column* title to “Z (Elevation)”. Now you know why we got rid of the extraneous column.
 - Set the *Content Type & Units* (Figure 18-3) to *Linear (Z)* and *Meters* (Figure 18-4).

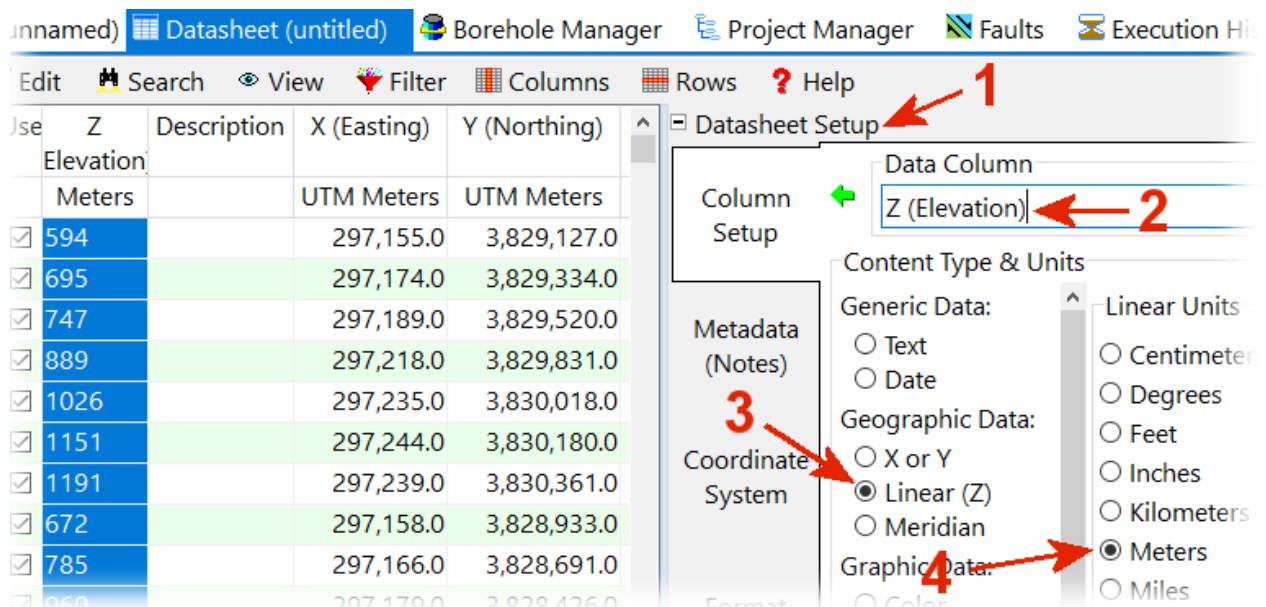


Figure 18

- Select the *Datasheet / File / Save* option (Figure 19) and save the *Datasheet* as “Points.RwDat”.

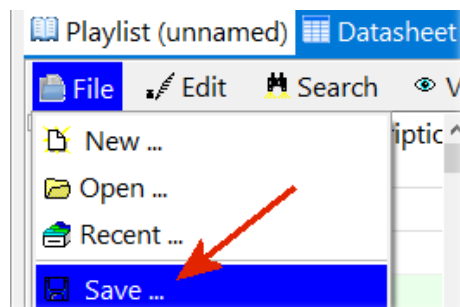


Figure 19

- Make sure that the coordinates within the Datasheet are in-sync with the Project Coordinates by clicking on the Coordinates tab at the top of the main RockWorks menu (Figure 20). If the Coordinate System is different (Figure 20-1), click on the Reassign option (Figure 20-2).

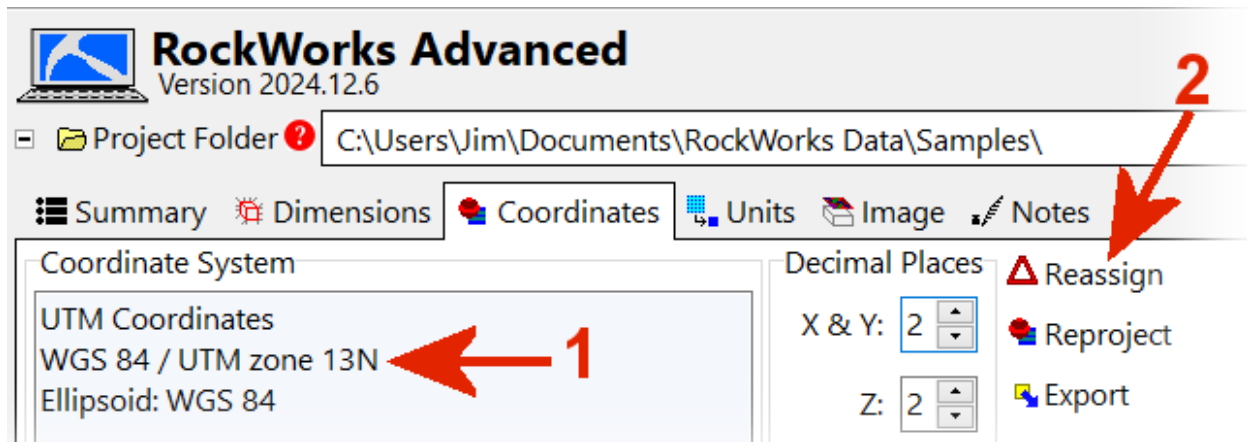


Figure 20

- Clicking on the *Reassign* option will display a menu (Figure 21) that will change the *Project Coordinate System* to be in-sync with the *Datasheet*.

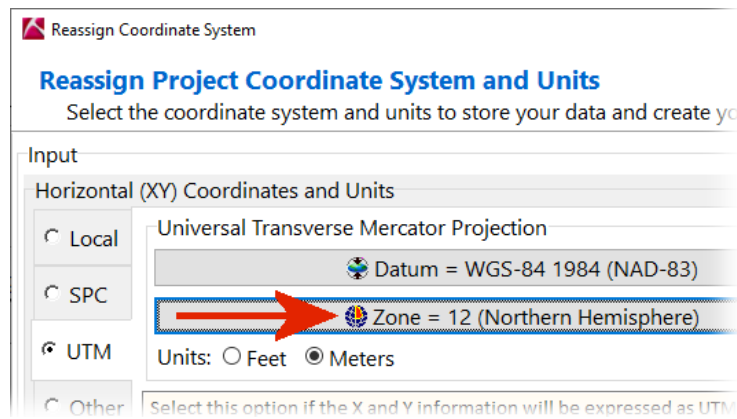


Figure 21

- After finishing with the *Reassign* menu, you will be asked to reset the *Project Dimensions* by scanning the data (Figure 22). Select the *Scan Datasheet* option and select the appropriate column within the *Set Dimensions From Datasheet* menu.

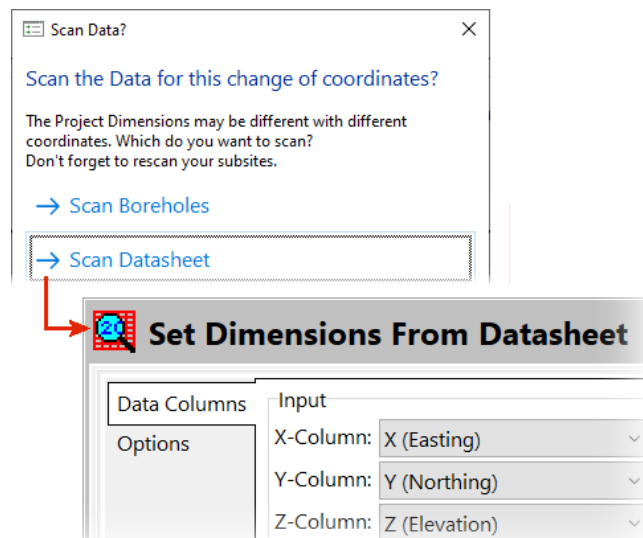


Figure 22

- Before continuing, click on the *Options* tab and make sure that the *XYZ Data* (versus the *XY Data*) is going to be scanned (Figure 23).

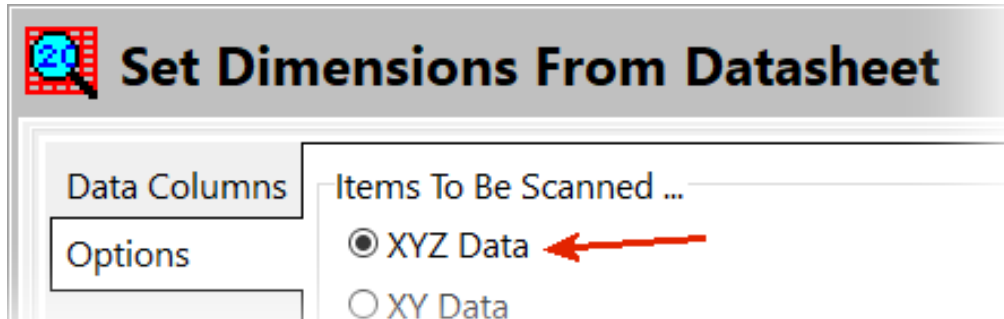


Figure 23

- Upon completion, the *Project Dimensions* (Figure 24) will represent a parallelopiped that encloses the points that were digitized within Google Earth.

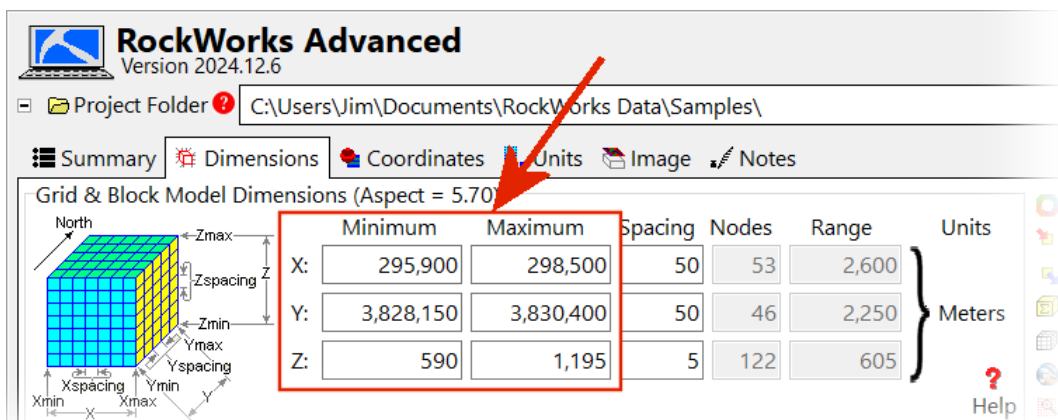


Figure 24

- We're finally ready to create some maps and diagrams, so select the ModOps / Create / XYZ -> Grid option (Figure 25).

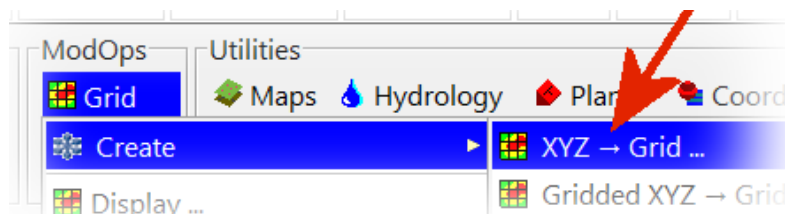


Figure 25

- Set the X, Y, and Z *Data Columns* (Figure 26) to read from the columns within the datasheet that we imported from Google Earth.

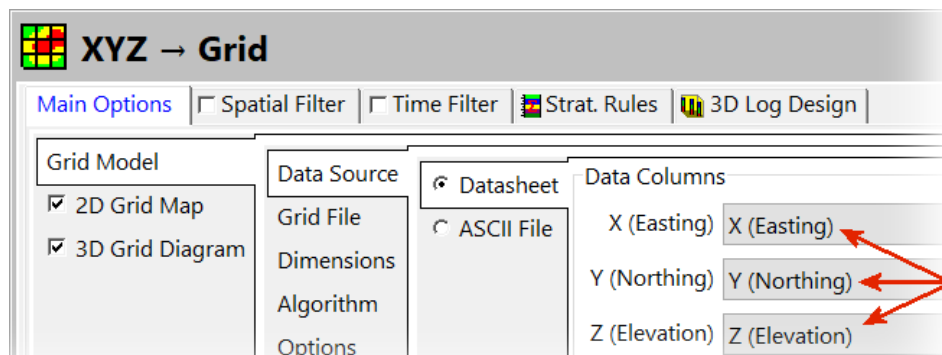


Figure 26

- Set the name of the Grid Model to “Pit.RwGrd” (Figure 27).

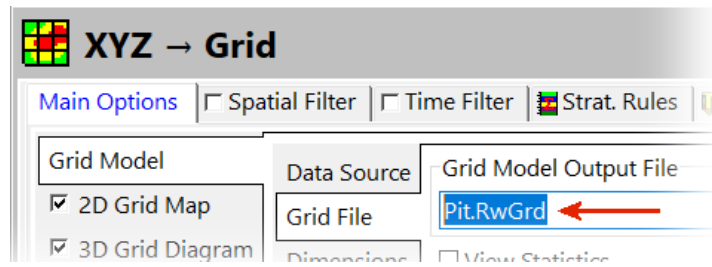


Figure 27

- Set the interpolation Algorithm to Radial Basis (Figure 28).

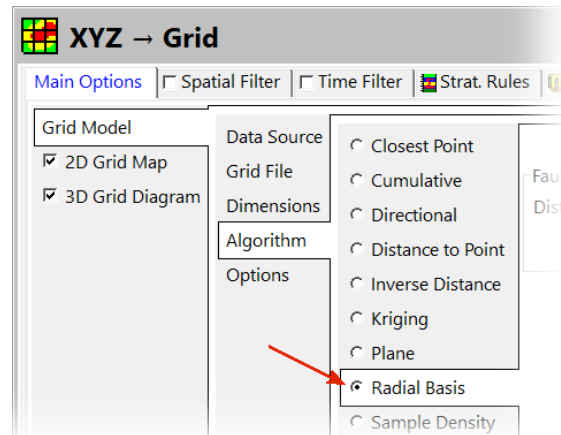


Figure 28

- Click the *Continue* button and a contour map and a 3-D surface diagram (Figure 29) will be created. Your results may vary depending upon settings within the 2D Grid Map and 3D Grid Diagram sub-menus.

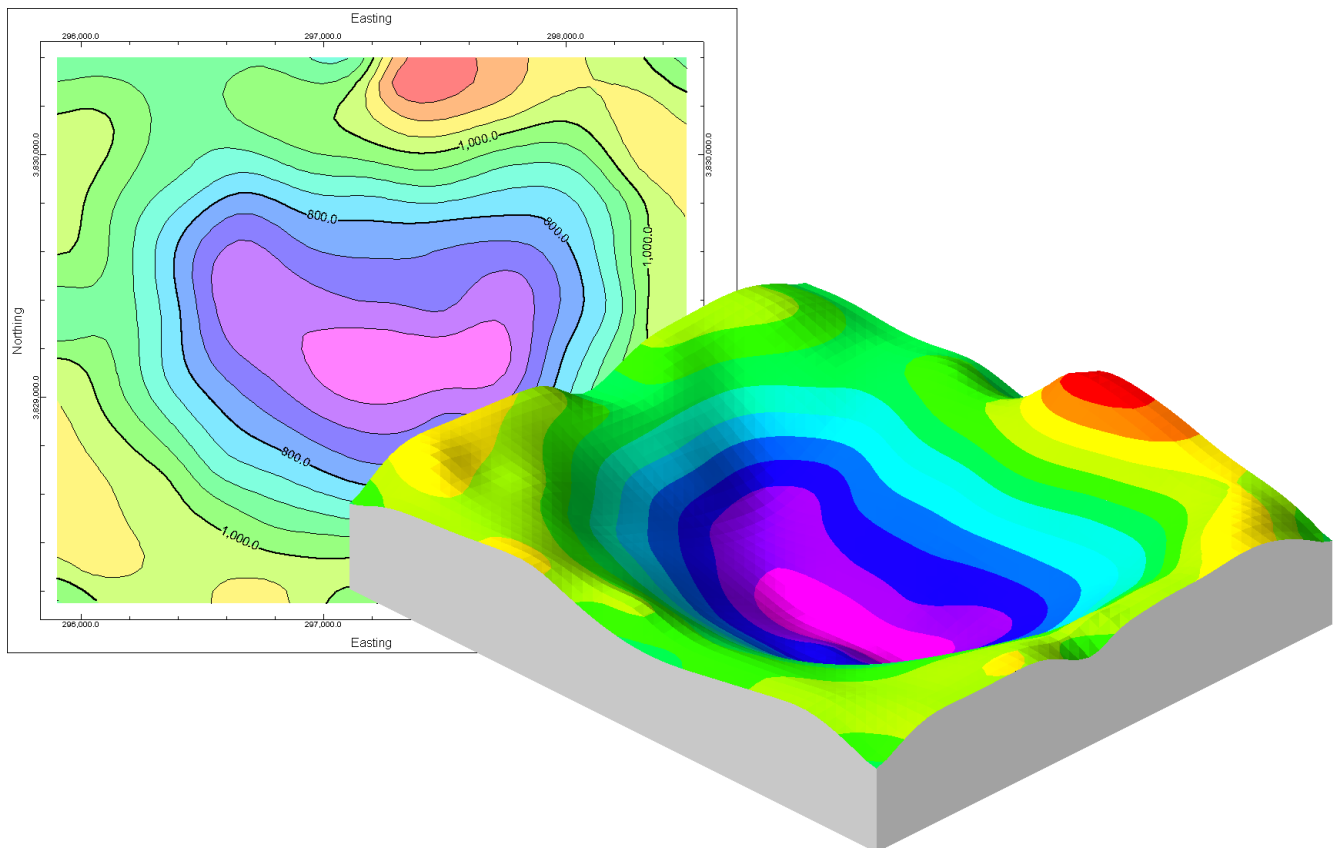


Figure 29

- Now, let's drape the contour map onto the Google Earth surface by clicking on the *2D Grid Map* "untitled" output tab and selecting the *File / Export / KMZ* option (Figure 30).

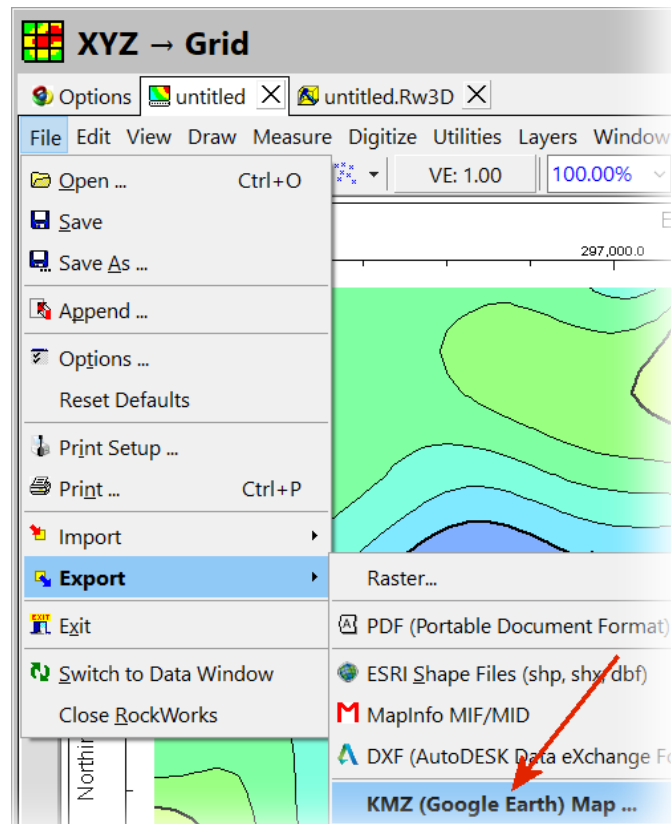


Figure 30

- Make sure that the *Raster* and *Drape* options are checked within the *RockPlot2D Map -> Google Earth* menu (Figure 31) and press the *Continue* button.

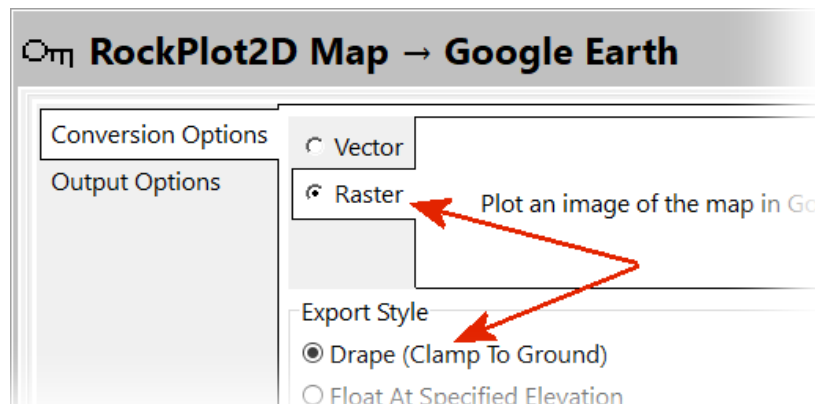


Figure 31

- Once the map has been draped onto the Google Earth Surface, you can right-click on the image name in Google Earth and adjust the transparency (Figure 32).

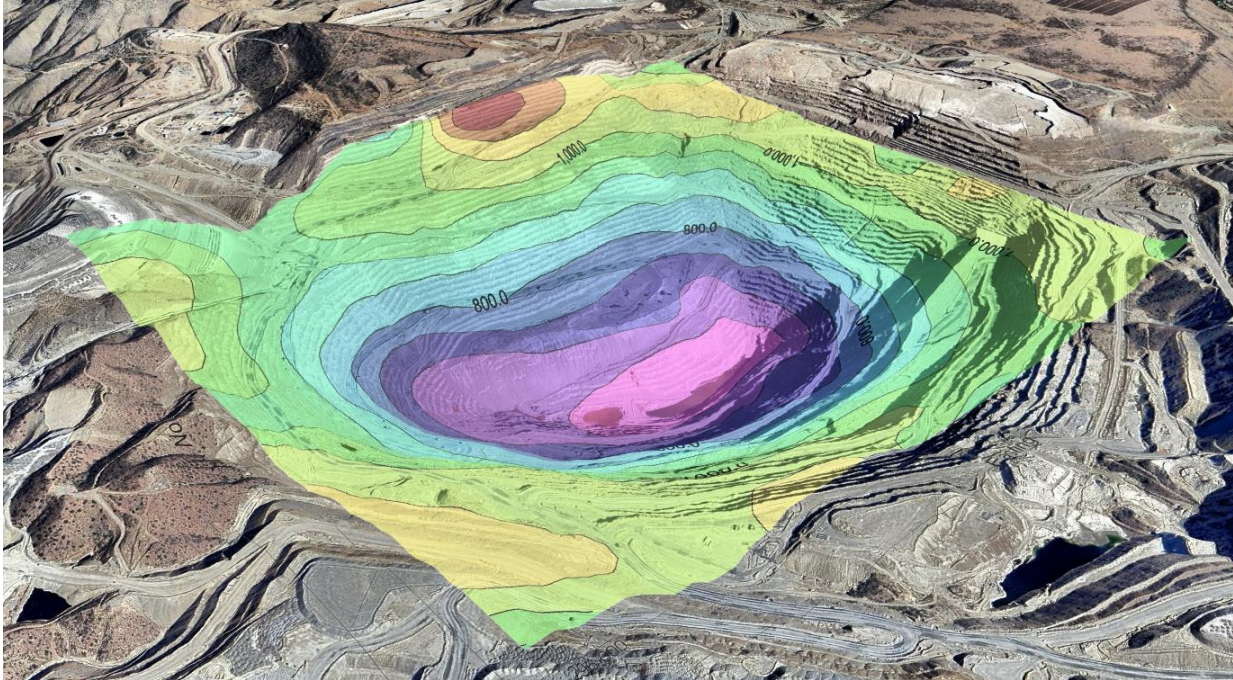


Figure 32