ROUGH GUIDES

# Converting 2D DXF to a 3D LSS Survey

LSS™

Introduction

If you've been sent a 2-D AutoCAD DXF instead of a 3-D one and you want to import it into LSS as a 3-D model this is the rough guide you need. As long as the DXF file contains spot levels as items of text, this Rough Guide will explain how you can recover at least some of the data with the minimum of fuss.
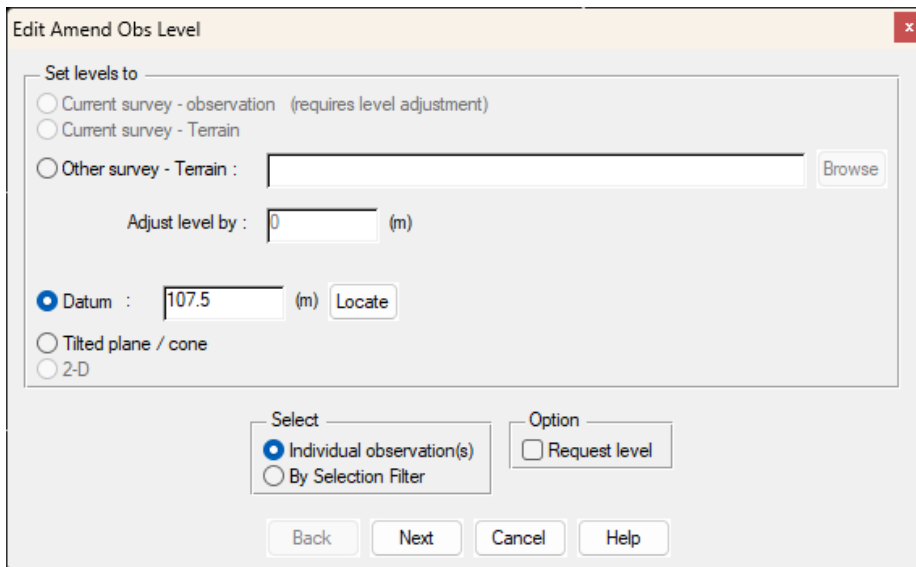
Example 1

Converting 2D lines to 3D Strings

1) Start by creating a New Survey, then import the DXF using "Input / Convert from… / AutoCAD DXF".
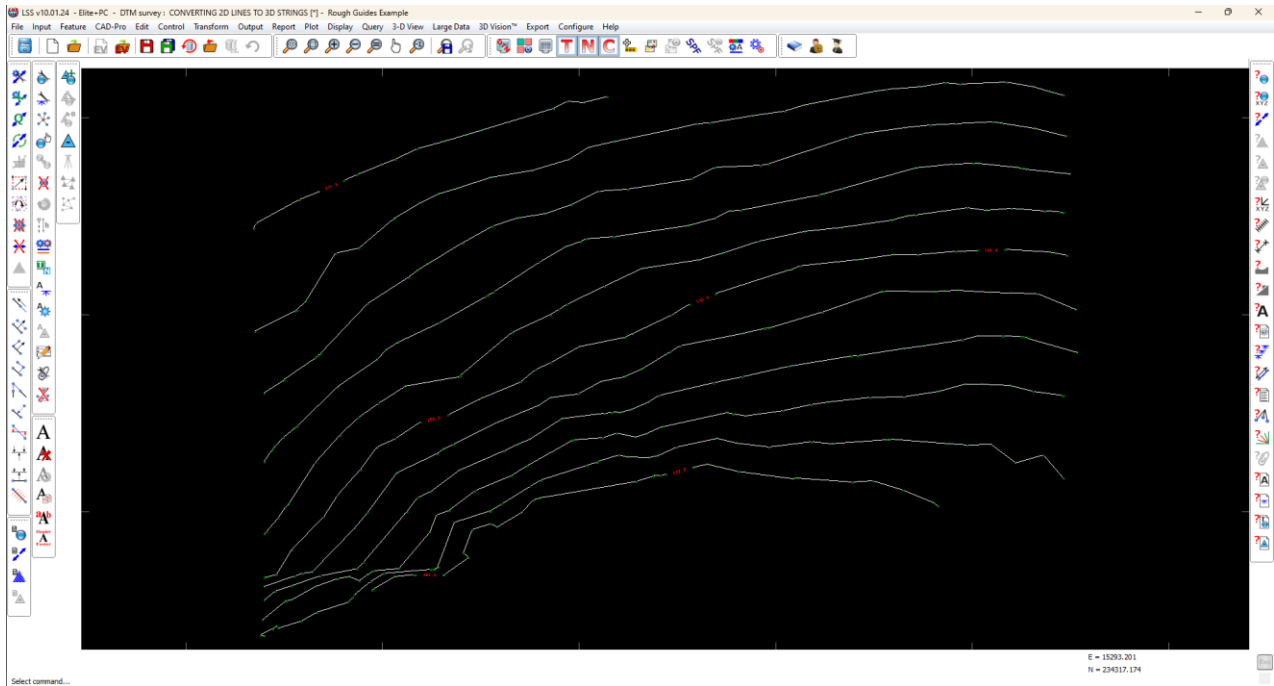


In the above example, the lines are representing contours at 0.5m intervals.

2) Invoke the command "Edit / Amend Ons Level"

Select the "Datum" option and set the value to be that of the first contour line. In this example we will start with the value of 107.5

3) Upon clicking "Next", LSS is ready for us to start clicking points. However, we need to select an entire string of points, or as much of the relevant string as possible. So, we first need to invoke the MODE function.
To do this, we can either press F10 on the keyboard, or click on the Mode icon in the lower-right corner of the main LSS screen.
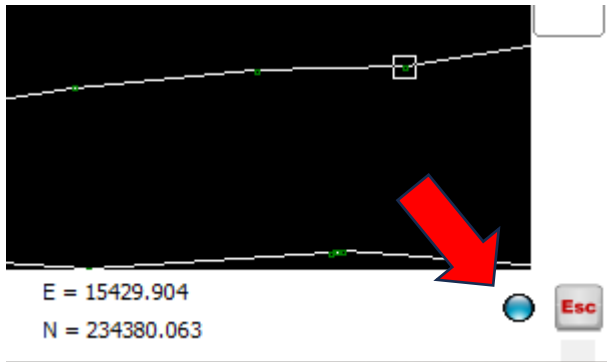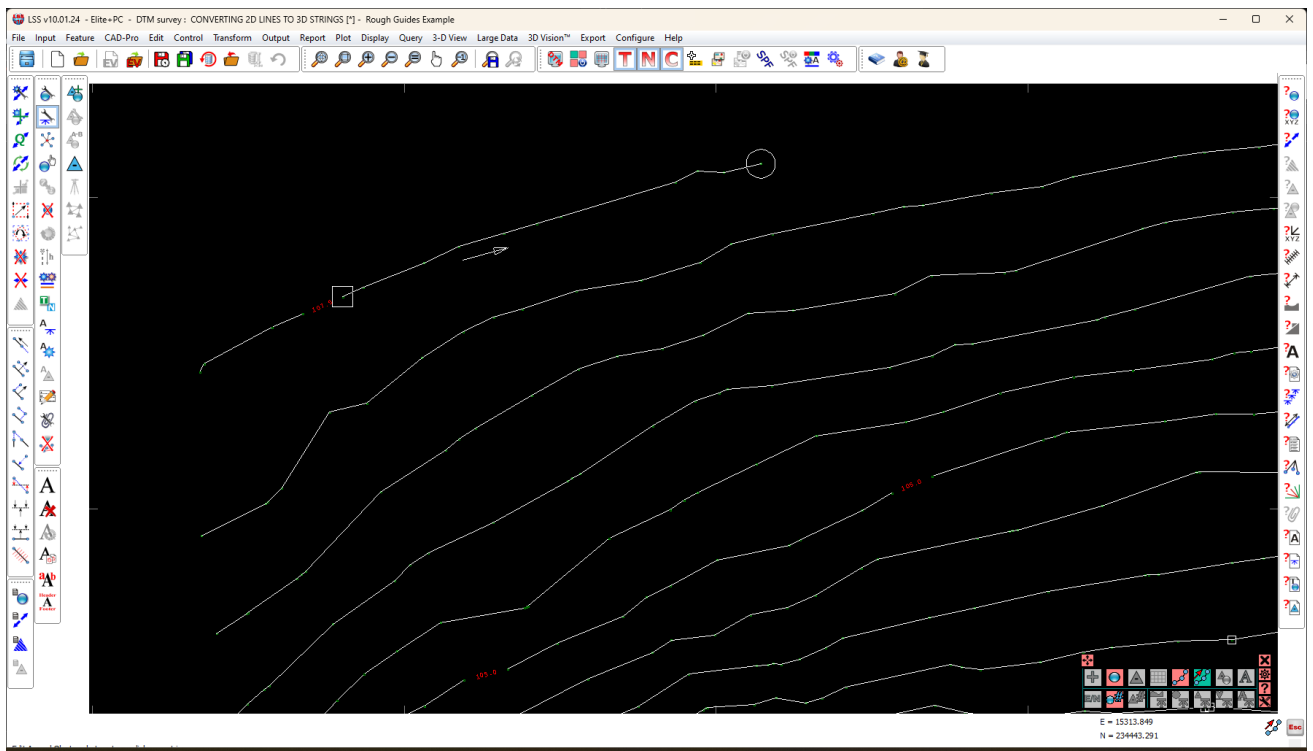

The MODE Widget will then appear…
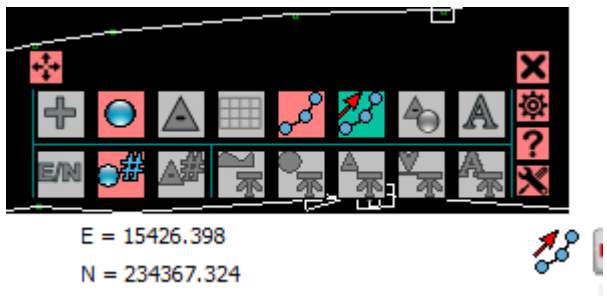
Here we need to select the "Whole String" option (This is the one highlighted in a different colour above)

4) Move the cursor over the relevant string and LSS will highlight it.

5) Click on the string and LSS will apply the relevant level value to all the points on that string.

6) Press the Escape key on the keyboard and LSS will return to the previous window.
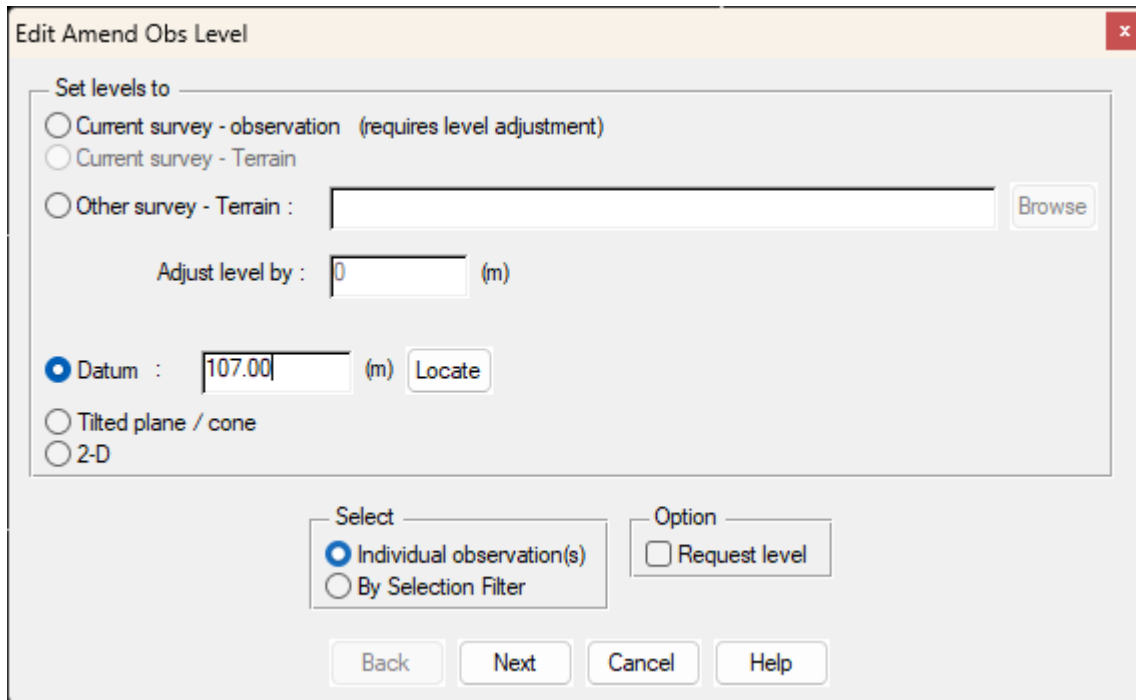
Here you can specify another Datum level and continue with the process to assign levels to the other strings or Cancel to finish.

7) As a result of the DXF data being 2D as opposed to zero level, the strings in the LSS survey may be in the Non-terrain and therefore are still not forming the triangles of a DTM. So to correct this and make all the strings Terrain, we need to do the following:

8) From the Main Menu select "Edit / Reassign Overlay"
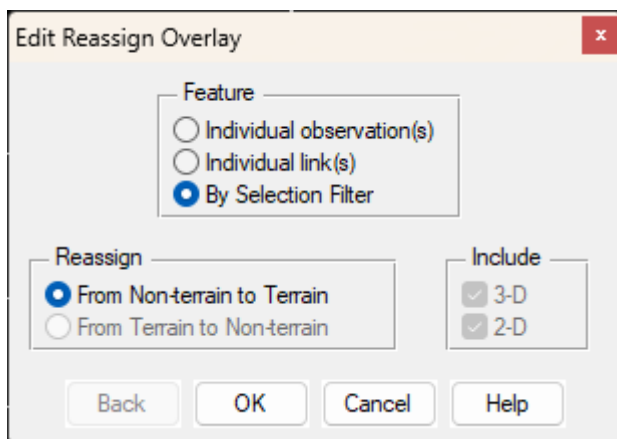
In this command, we will need to select "By Selection Filter", as we will need to select all the points at the same time.
We will also select "From Non-terrain to Terrain" (this may be the only option available at this stage)

9) Click Ok and LSS will display the Selection Filter window…
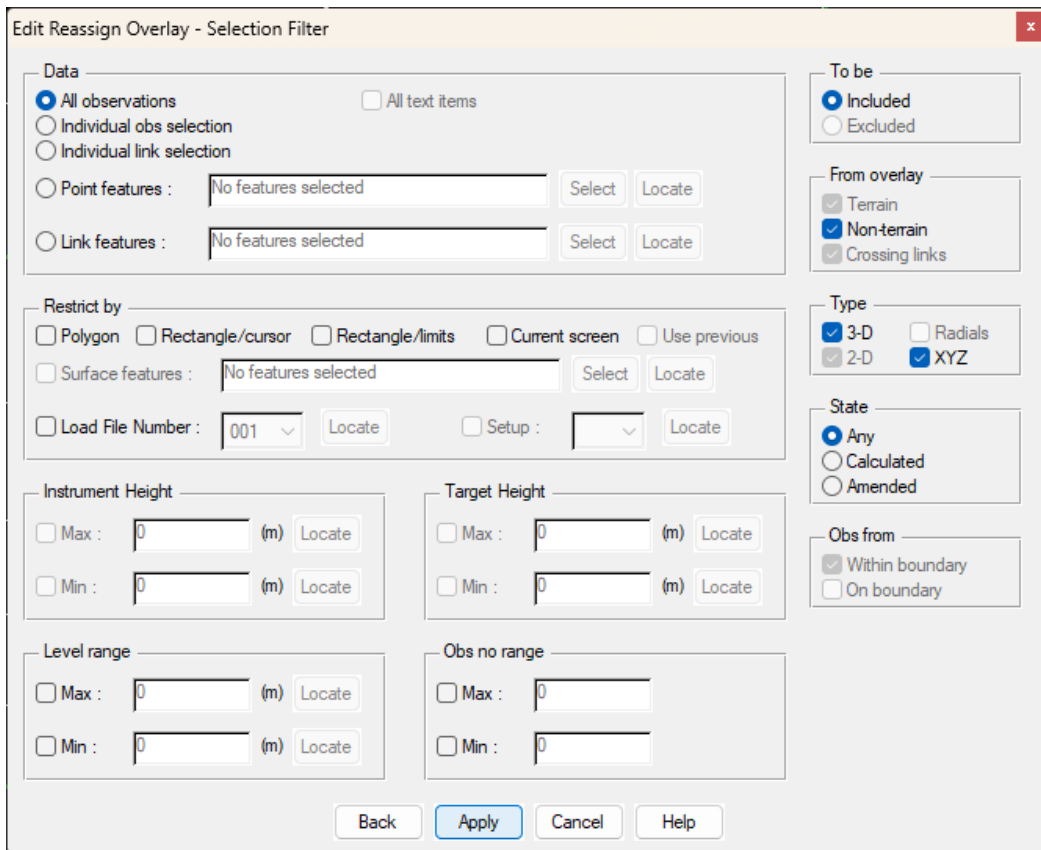
For this exercise we do not need to change anything, as "All observations" is already selected as the default option.

Click "Apply" and LSS will select all the points in the survey. Then click "Finish"

We can now Cancel out of the command.

10) If you have selected a smaller contour interval in "Configure / DTM Display", the resultant plan display should look something like this…
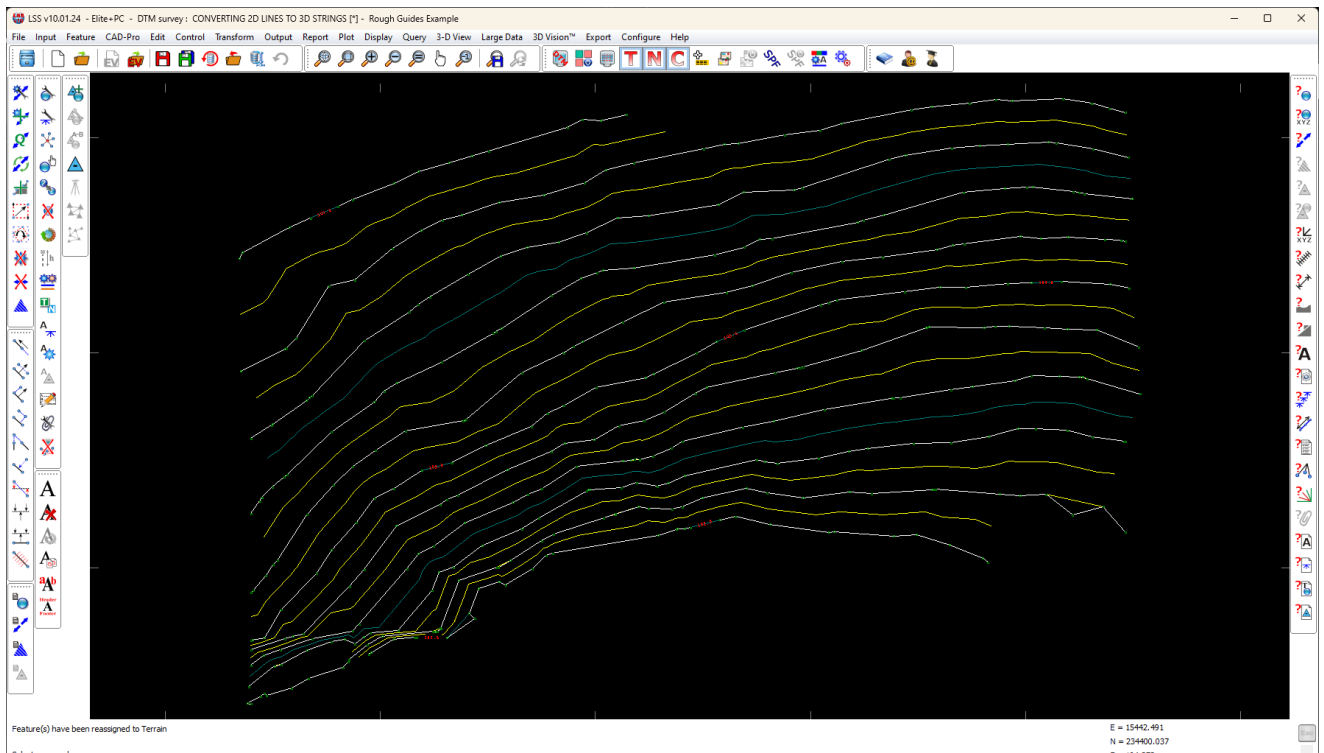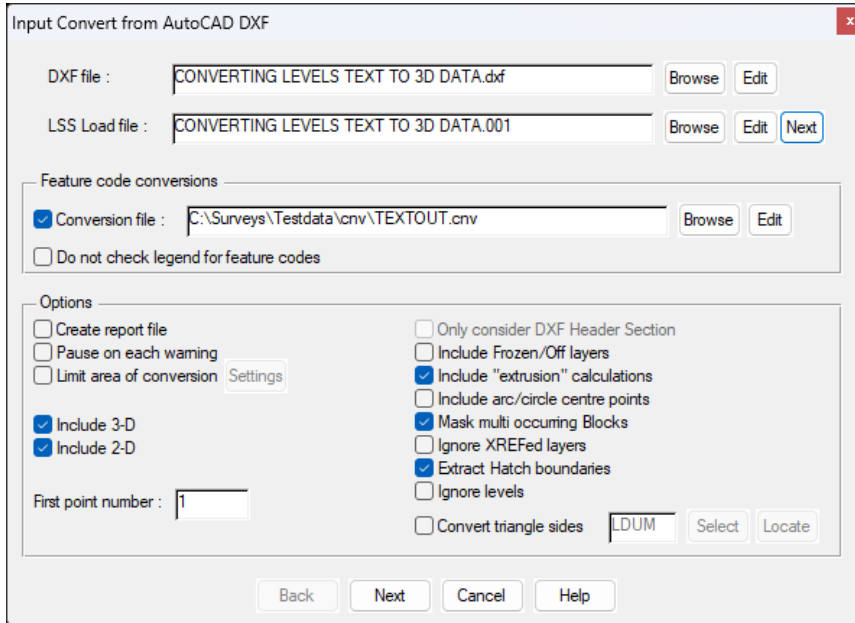
Example 2

Converting level text into 3D data

In this example, we will be looking at how to convert level text in the DXF into 3D points, to form a DTM.

1) Start by creating a New Survey, then selecting the command "Input / Convert from… / AutoCAD DXF.

Here we can select the DXF to convert, but the important part is to select a conversion file called "TEXTOUT.CNV". This file can be located in the TESTDATA\CNV folder.

The cnv file contains the record "TEXTOUT, , LEVELS". With this command, LSS will identify all items of NUMERIC text, and will generate a point at the insertion of each text item. The level of the resultant point will be the relevant text value.

2) Upon clicking Next, the following window will appear…
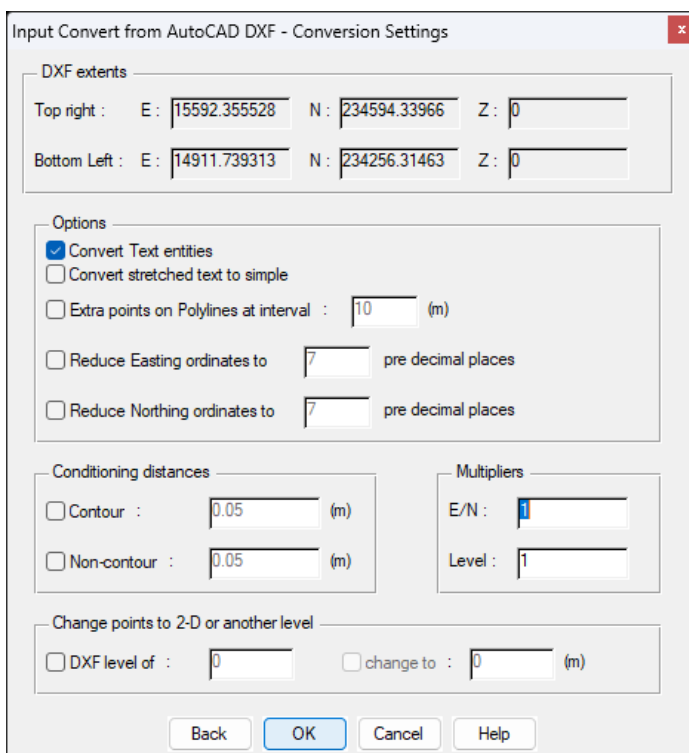
The only thing that is needed here is to ensure the option to "Convert text entities" is ticked, as this will enable LSS to include the text.

3) Click Ok and LSS will convert the DXF.

4) Once completed, continue with the process, and Save and Load into the survey.
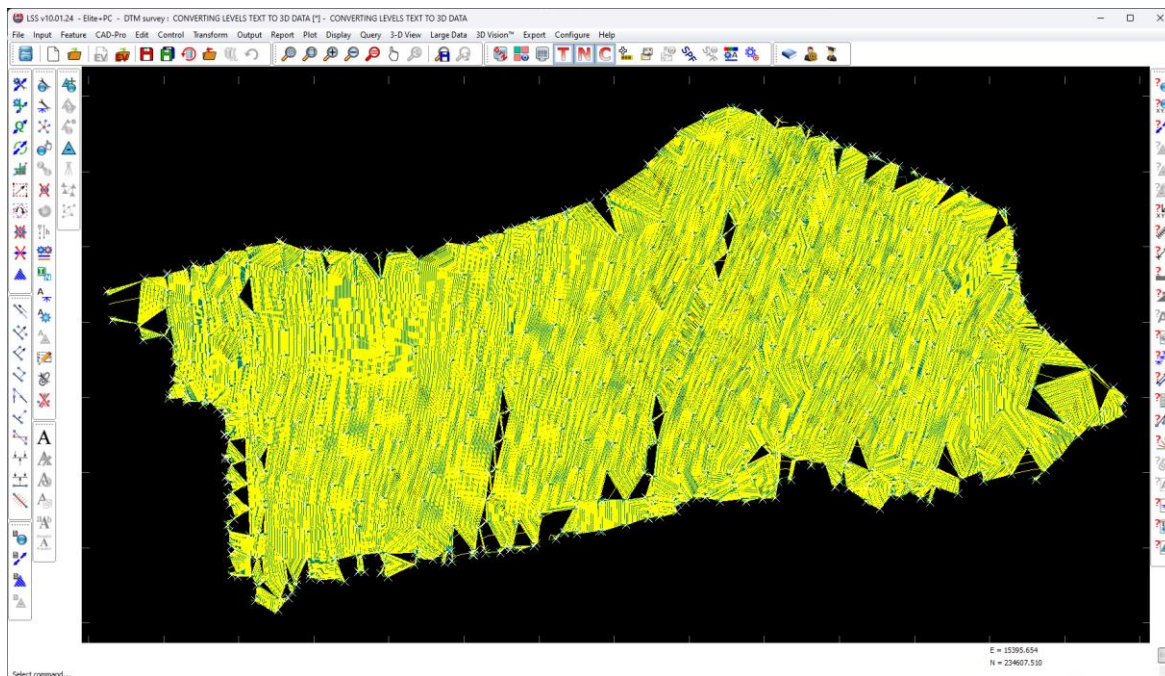

At this stage it may look a bit of a mess, especially if you have contours turned on. But this is due to there being original points at zero level and new points at the converted level.

5) To tidy this up, we first need to delete all the zero level points. This is done using the "Edit / Remove Obs" command.


Here we need to select the "Multiple" option by clicking the Filter button. This will display the Selection Filter window…
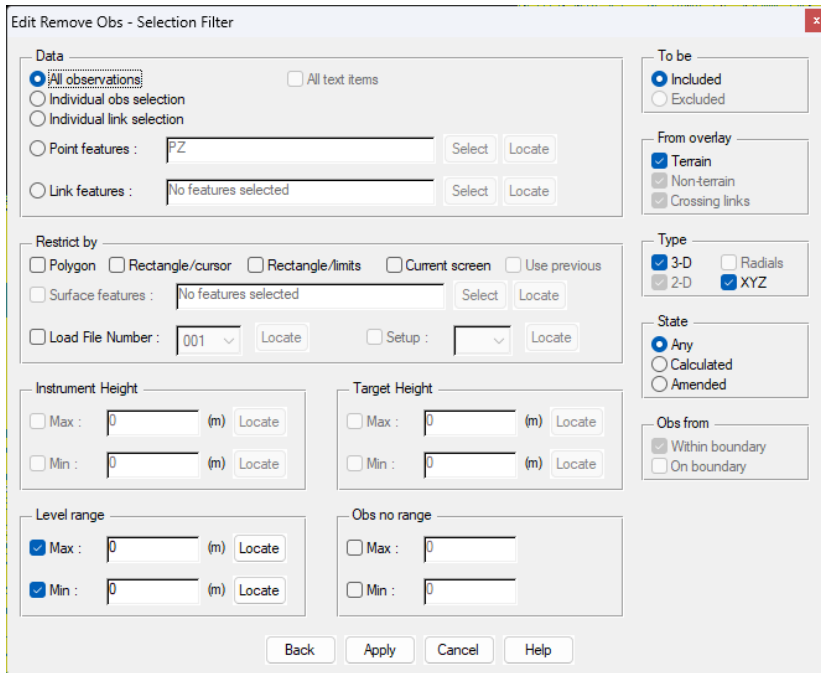
Here we need to ensure that "All Observations" is selected, but ensure that only the zero levels are selected, we need to tick the options for Max & Min "Level range" and have both values as zero.

When we click "Apply", LSS will select all the relevant points, then when "Finish" is clicked it will remove all the relevant points.

We can then Escape out of the command. The end result should look something like this...
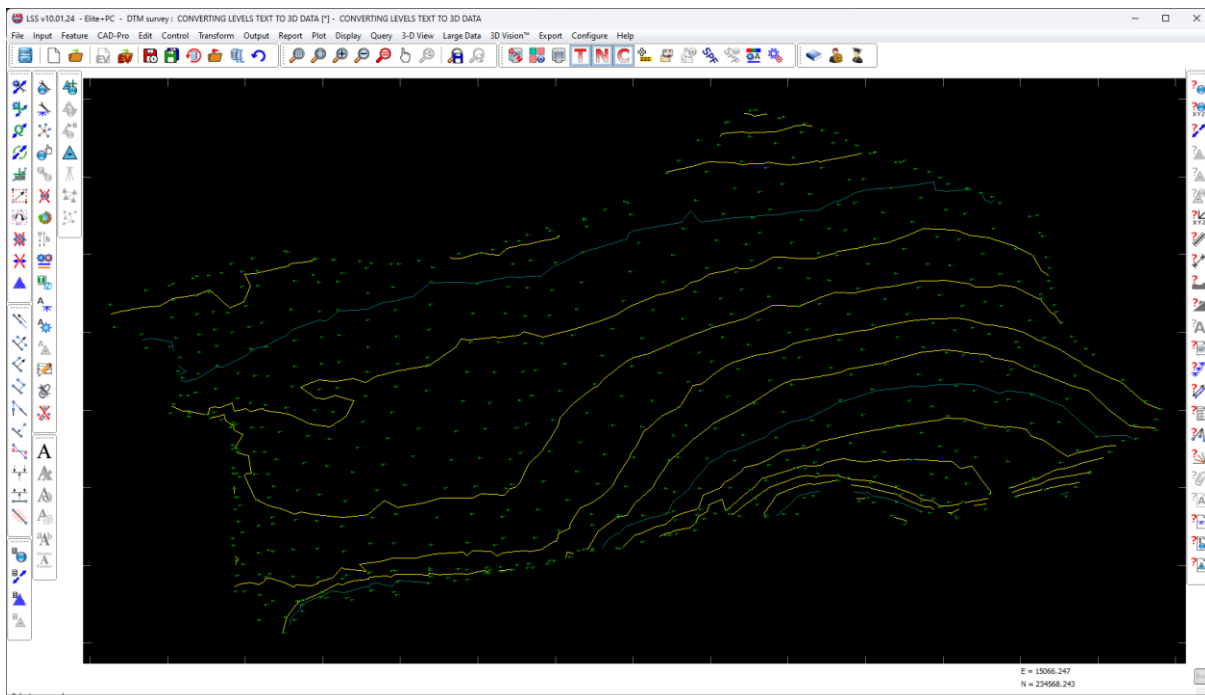
NOTE

As a result of the TEXTOUT function and points being generated at the insertion point of each text item, the resultant levels may not be in the same location as the original points. If there is a uniform offset away from the original position, then the survey can be transformed to correct this. But generally due to variations in the positioning and orientation of levels text, this is not always a complete solution.

If you need further Technical Support, or you wish to attend any training courses please contact us…

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