ROUGH GUIDES

Pre / Post Settlement Modelling

LSS™

Introduction

In many examples of placing fill materials the proposed restoration contours represent the required final model after any settlement of the fill has taken place, *(*That is the Post settlement restoration).

It is usually necessary at planning stage to create a model that allows for settlement of fill materials and this is achieved by creating a Pre-settlement restoration model.
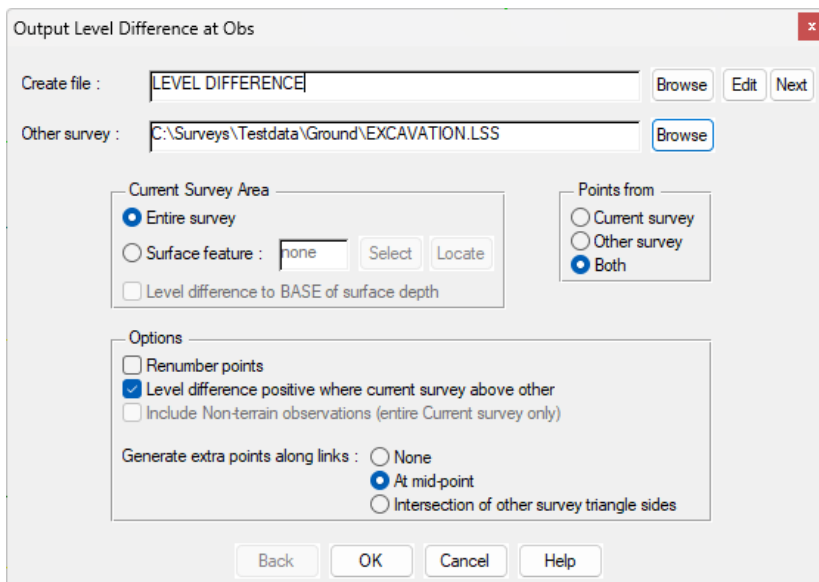
Step 1 – Create a Level Difference model

For this guide we are going to create a level difference model between two surveys in the LSS Testdata, namely GROUND and EXCAVATION.
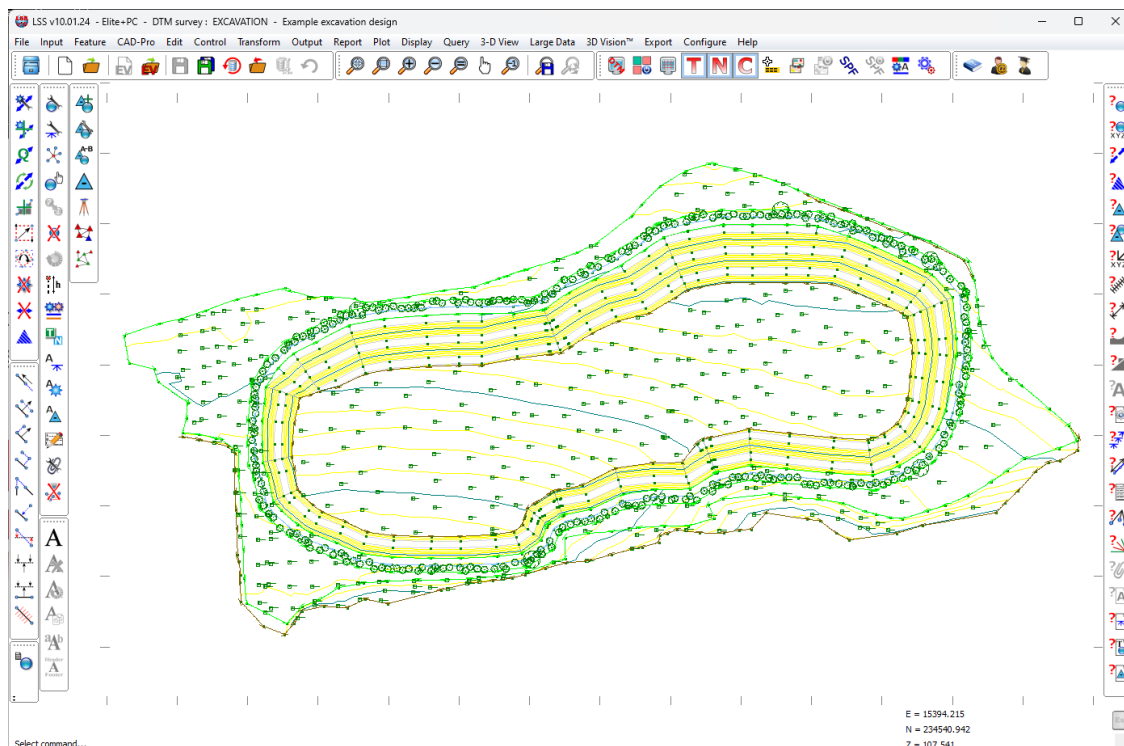
We will start by opening the GROUND survey.
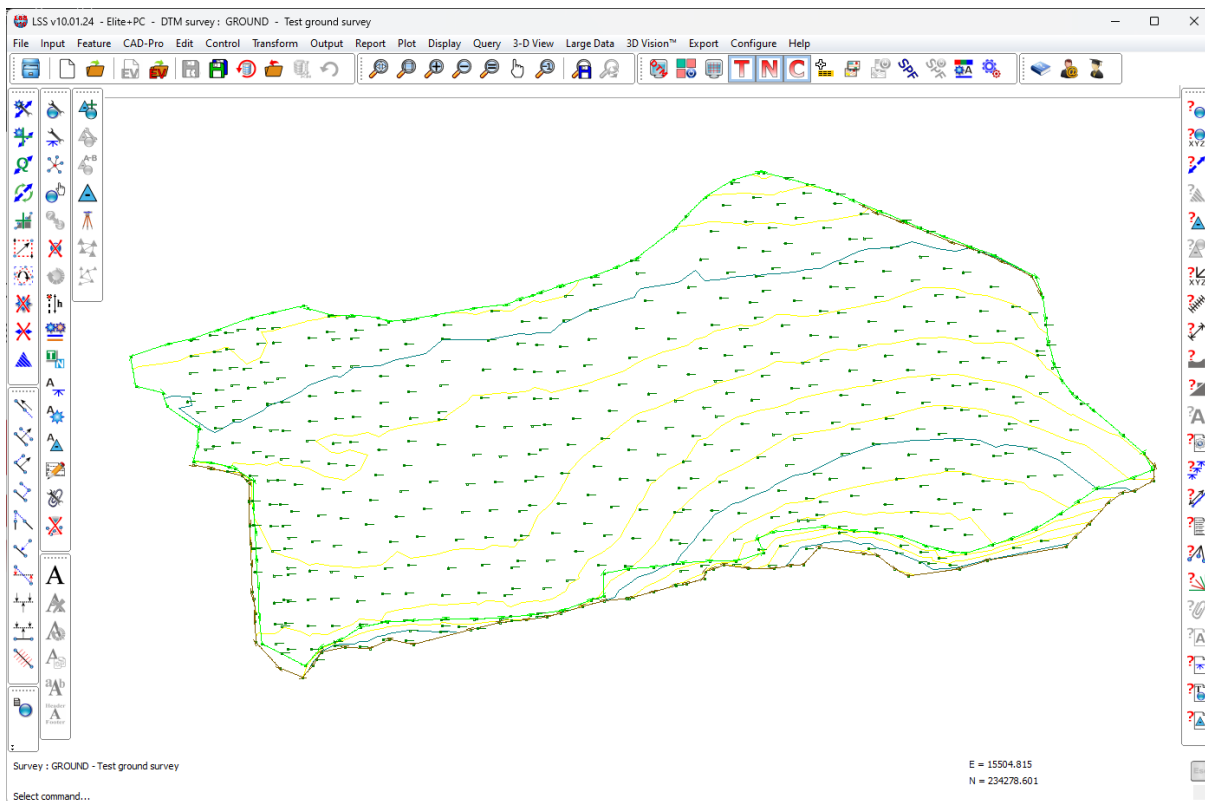
We then need to use the command "Output / Level Difference – At observations".

Here we are going to create a model called "LEVEL DIFFERENCE.LSS", where each point in both surveys will be the level difference between GROUNG and EXCAVATION.

The EXCAVATION model looks like this…

We will create the level difference for the entire survey, and include observations from BOTH models. We will also ensure that the level difference is positive where the current survey is above the other.

Upon clicking Ok, LSS will calculate the level difference and create a load file.
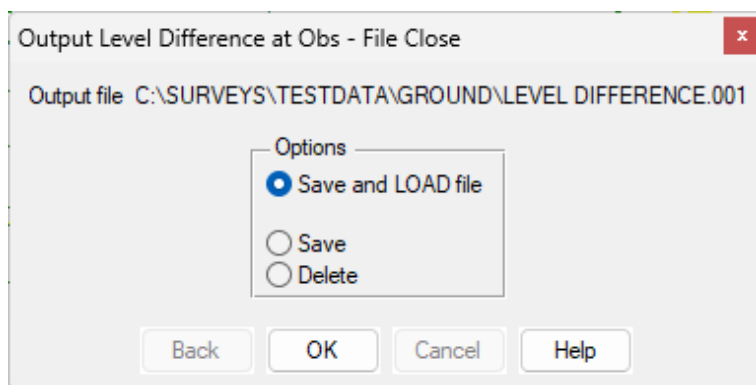
We select the option to "Save & Load file" and click OK. LSS will then create the file, close the current survey and take us into "File / New" to created the new Level Difference model and load in the data. So we need to just follow all the prompts using the default options.

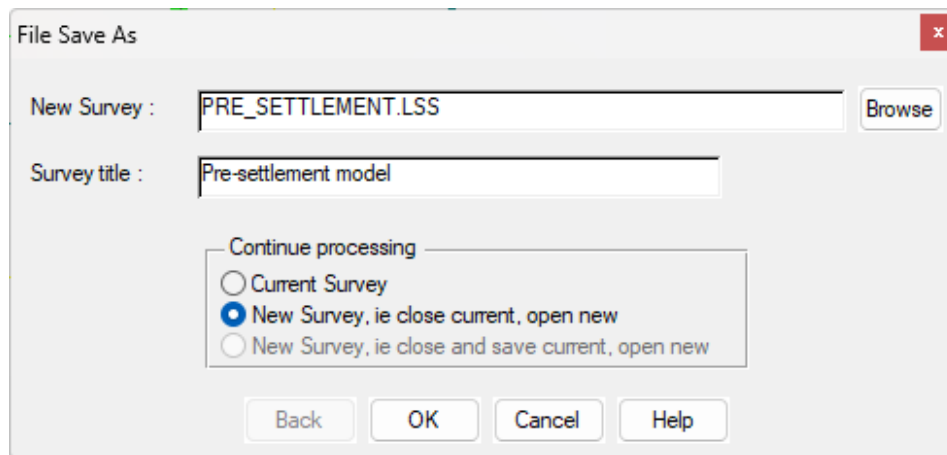As a result, we will have a level difference model that looks like this…

Step 2 – Merge the Landform of the Level Difference.
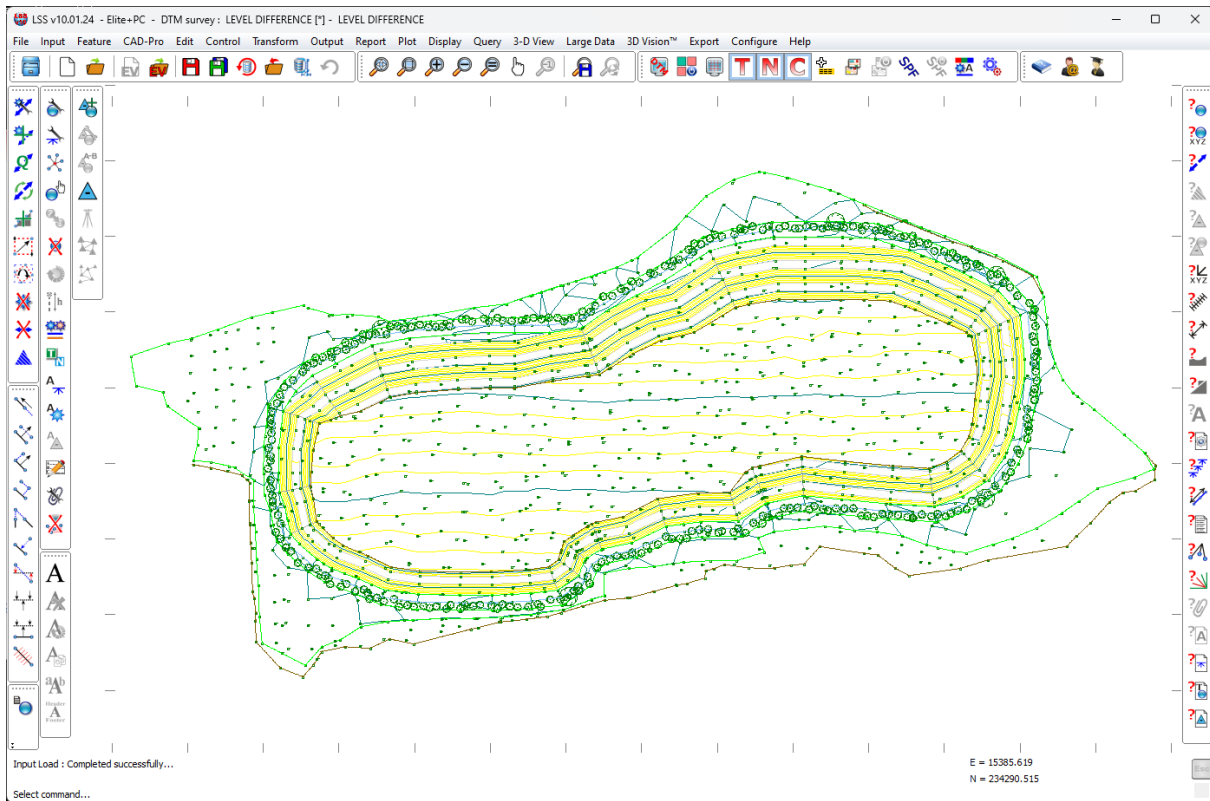
Now we need to save the model using "File / Save", then go back into the "GROUND" model.
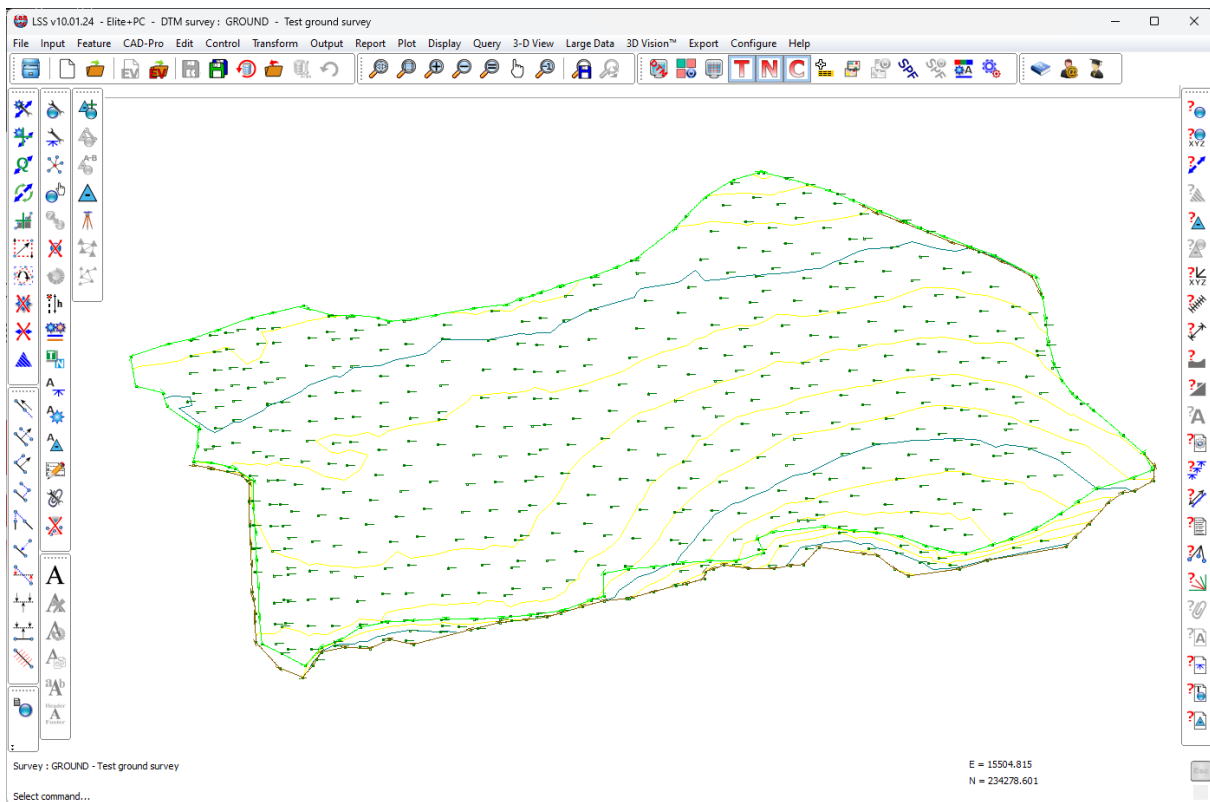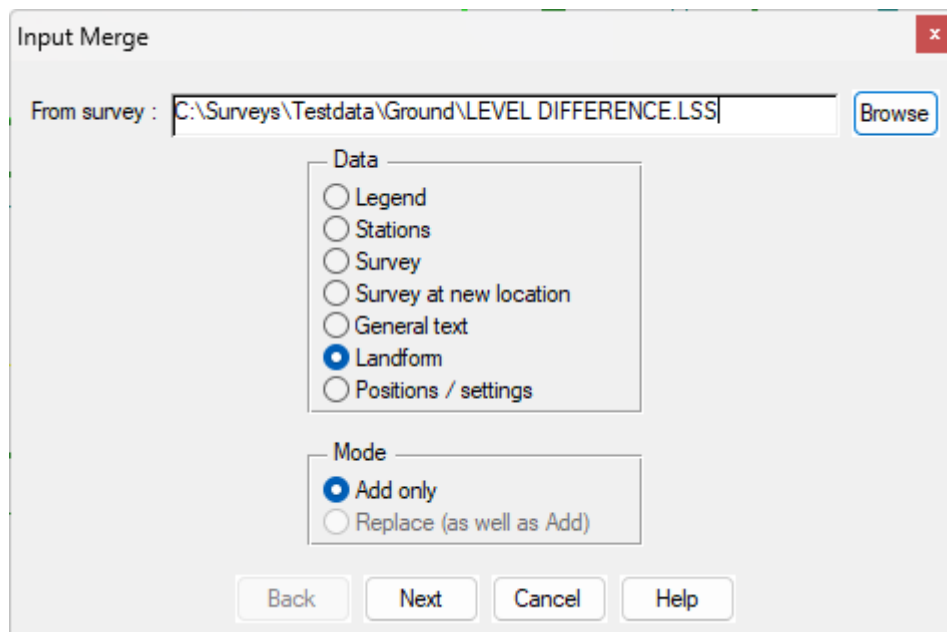
As this is representing the restoration design, we need to alter this model to represent the pre-settlement levels. So first we need to SaveAs under a new name. So we go to "File / Save As" and call it "PRE-SETTLEMENT"

File Save As

New Survey : PRE_SETTLEMENT.LSS   Browse

Survey title : Pre-settlement model

Continue processing
○ Current Survey
● New Survey, ie close current, open new
○ New Survey, ie close and save current, open new
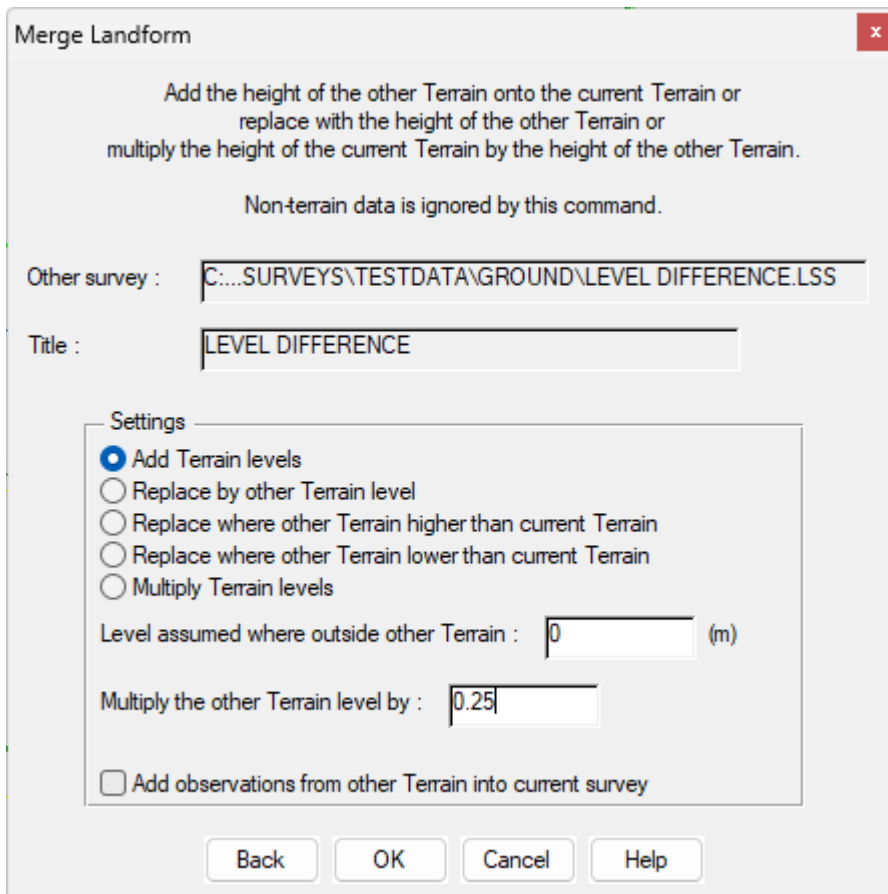
Back   OK   Cancel   Help

We now need to perform the adjustment. For this exercise we will assume that the original GROUND model was a POST 20% Settlement.

To do this we will use the command "Input / Merge" and the "LANDFORM" option, as we need to merge in the landform of the Level Difference model.

Input Merge

From survey : C:\Surveys\Testdata\Ground\LEVEL DIFFERENCE.LSS   Browse

Data
○ Legend
○ Stations
○ Survey
○ Survey at new location
○ General text
● Landform
○ Positions / settings

Mode
● Add only
○ Replace (as well as Add)

Back   Next   Cancel   Help

Click Ok which will display the options for the Landform function.

Here we need to "Add Terrain levels" from the level difference model, but also to "Multiple the other Terrain levels" by a specific value. This value is key to how this command works.

As GROUND model is POST a 20% settlement then to produce the Pre-settlement the multiplication factor should be 0.25 (the Pre is 100%, Post 80% so we need take 20 / 80).

(If model is PRE a 20% settlement then multiplying by -0.25 will provide the Post-settlement)

We will also ensure that the option to "Add observations from other Terrain into current survey" is NOT ticked, as we only need to use the Landform shape of the level difference model.
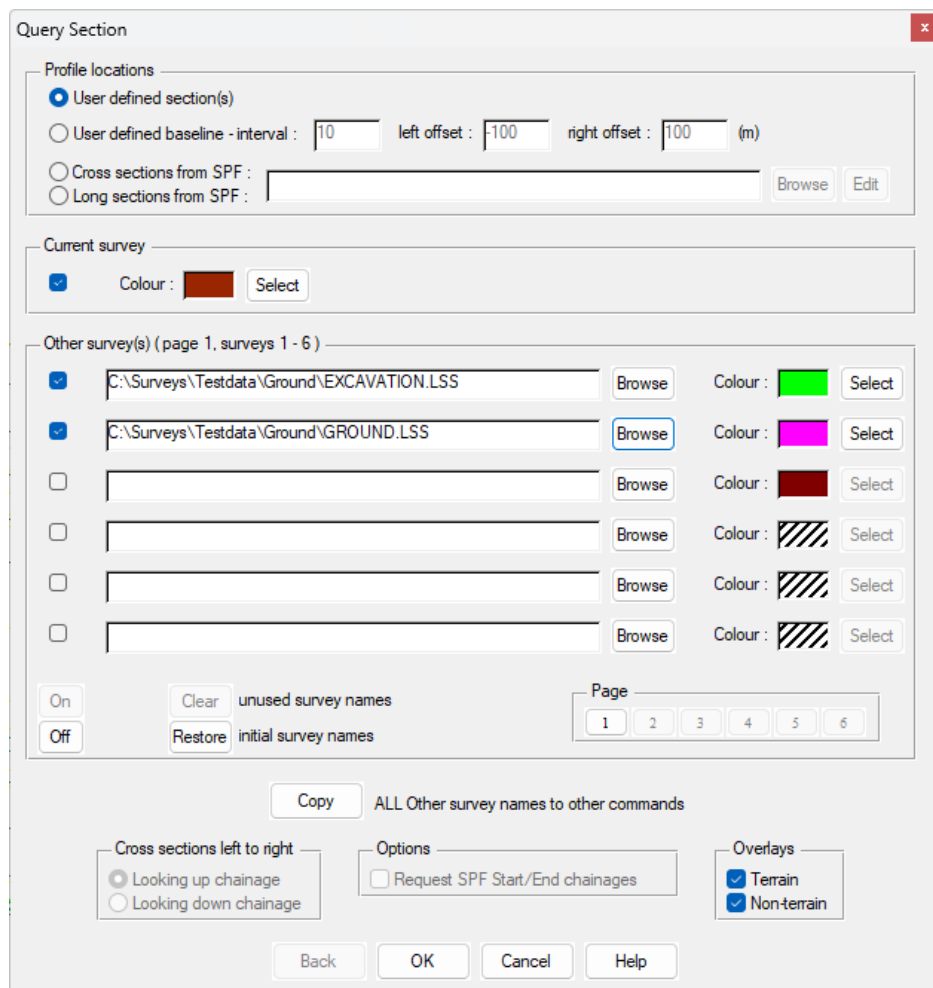
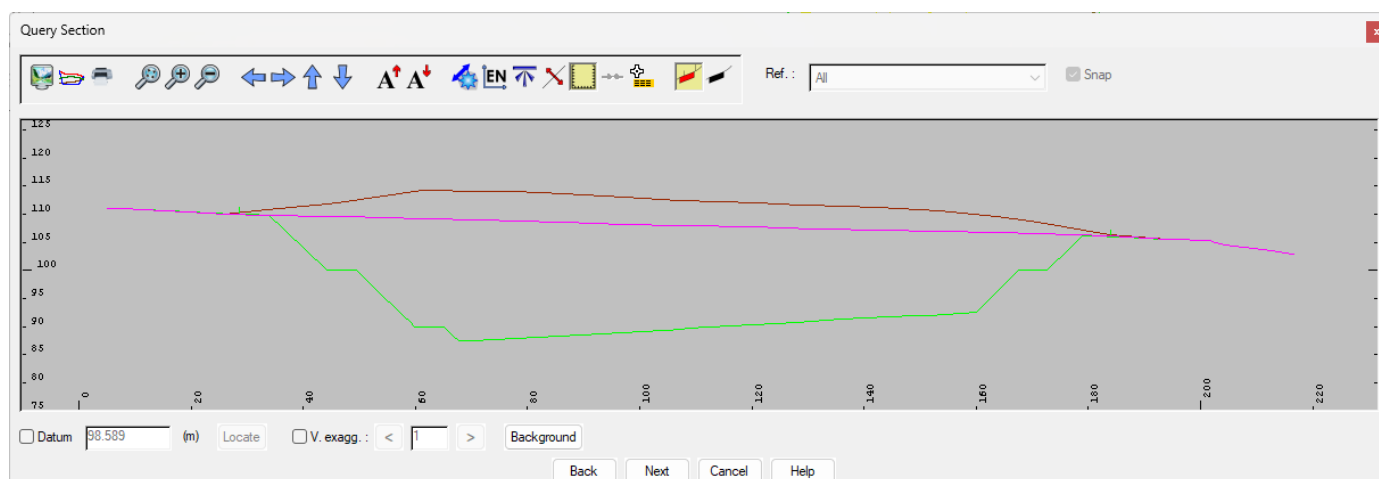Click Ok, and LSS will perform the landform merge.
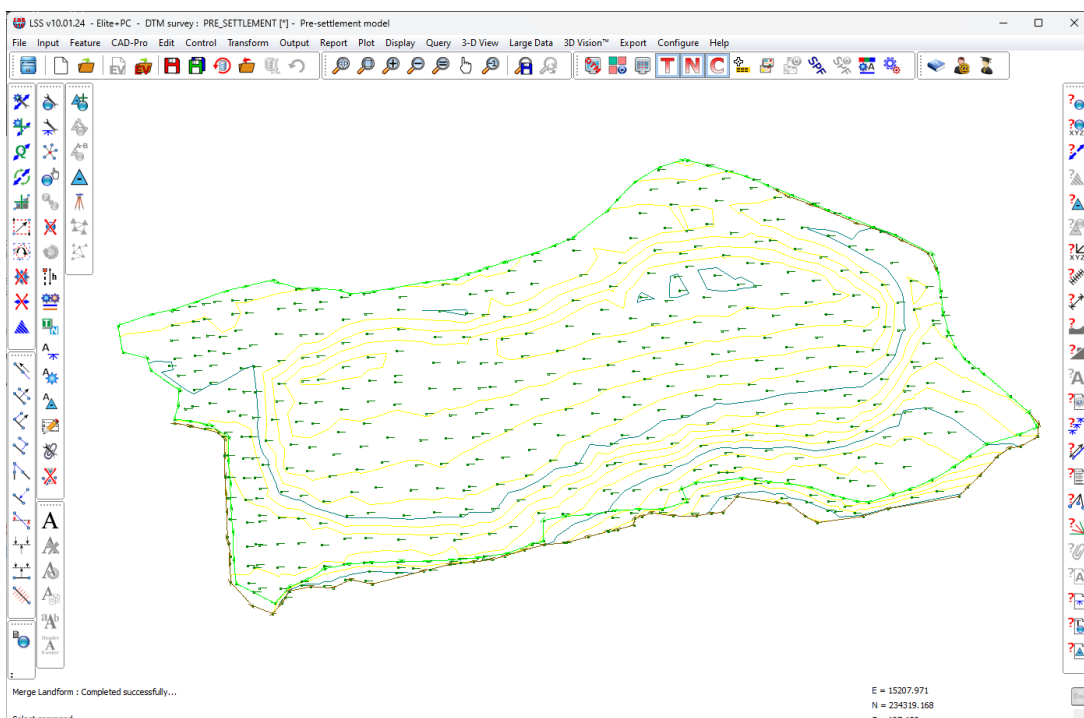
You should see that the contours will change accordingly, to represent the change in levels for the pre-settlement adjustment.

Save the survey at this point.

If we now do a quick "Query / Section" through the three models…

… we will see the Pre-Settlement profile in relation to the GROUND and EXCAVATION profiles…

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

McCarthy Taylor Systems Ltd
Aerial View
Acorn House
Shab Hill
Birdlip
Gloucestershire
GL4 8JX
Tel 01452 864244

support@dtmsoftware.com
www.dtmsoftware.com