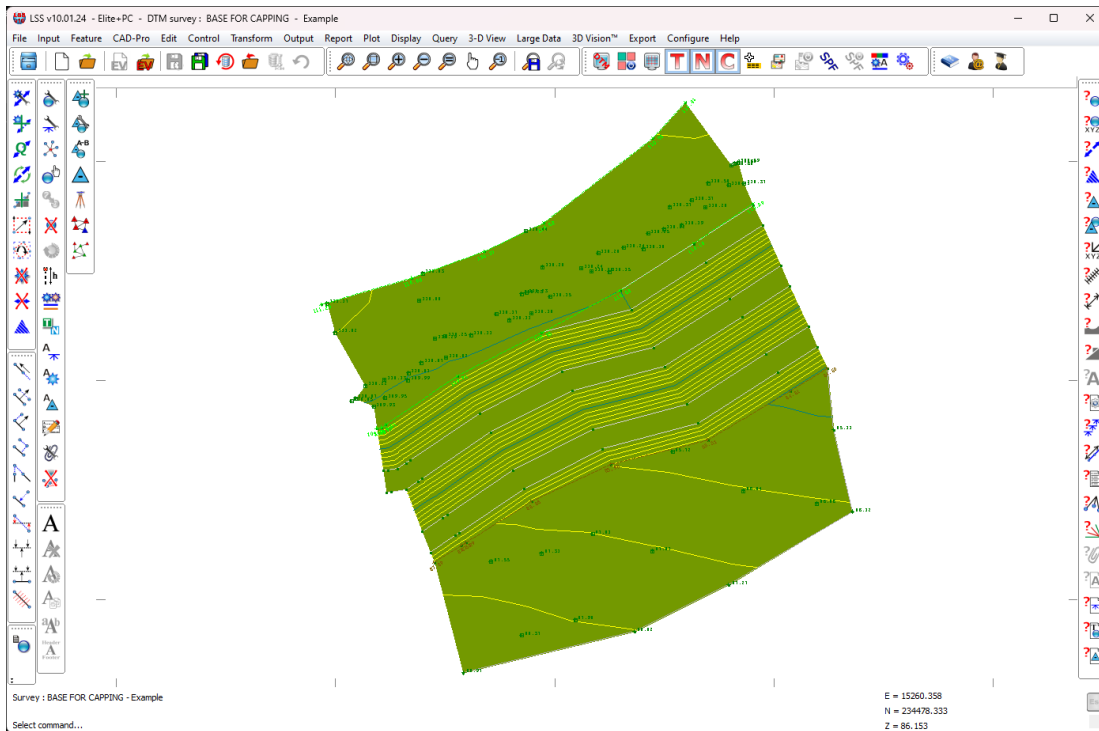# Modelling Clay Capping

LSS™

Introduction

This Rough Guide explains how to create a clay capping model.

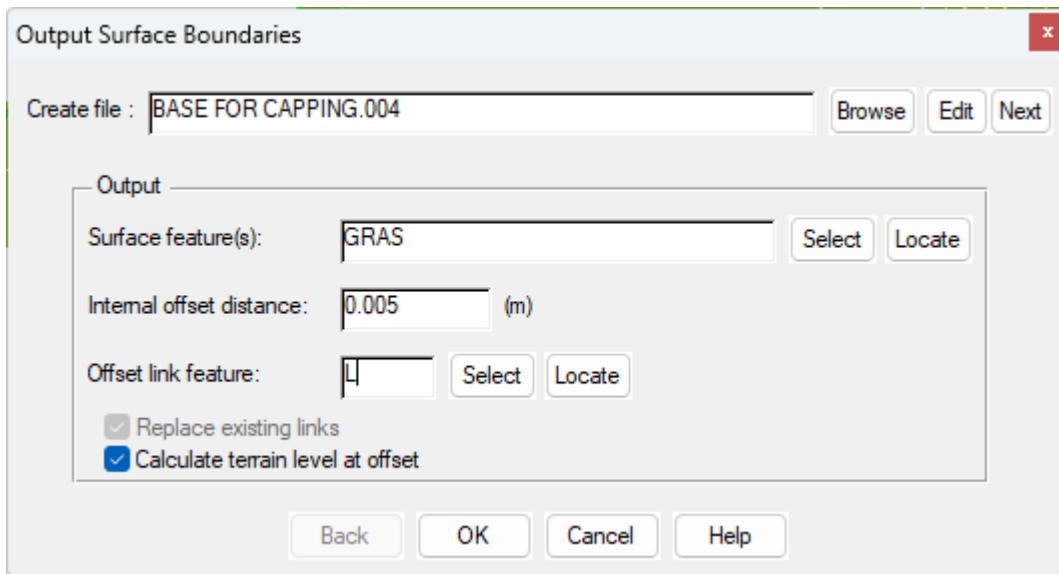Outputting the model to generate a clay capping model.

Start by opening the survey to model the clay capping from.

As you can see in the section view, the surface code has been given positive thickness of 0.5, but as this is a vertical thickness, it is not correct on the embankments.
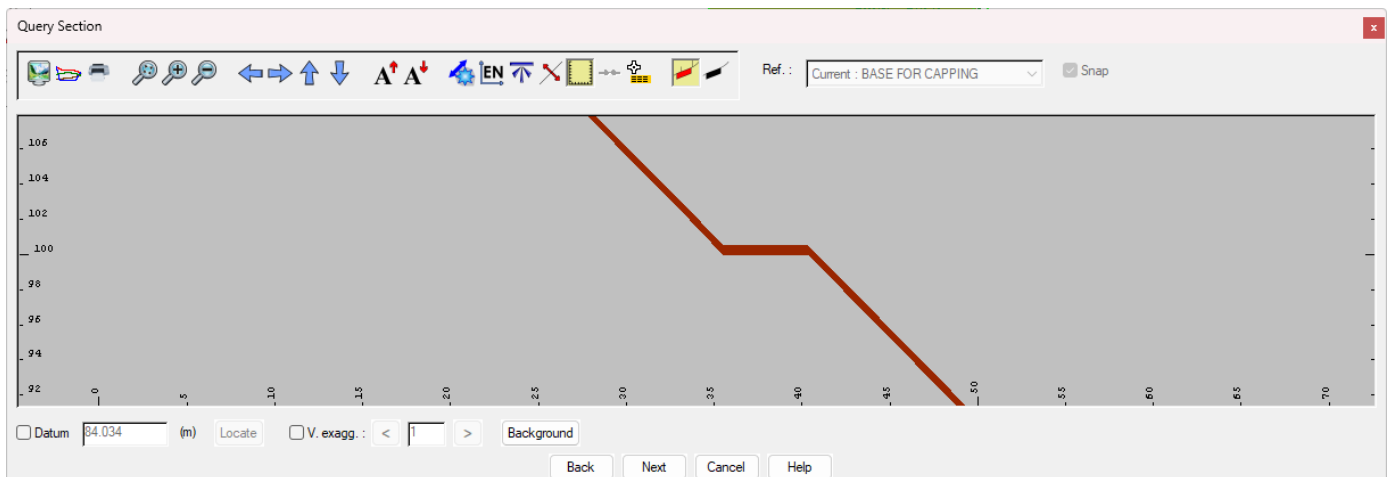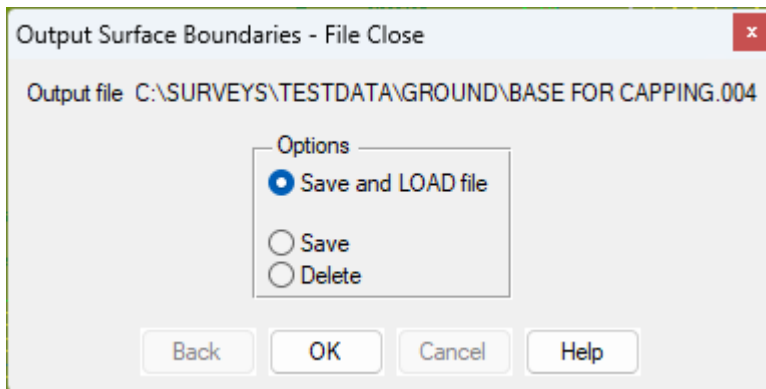
Now we first need to use the command "Output / Surface boundaries".

This command will generate an offsetted string around the boundary of each surface code. This is to ensure that when the formation model is created, there is a decent sidewall and level transition between adjacent surface codes.
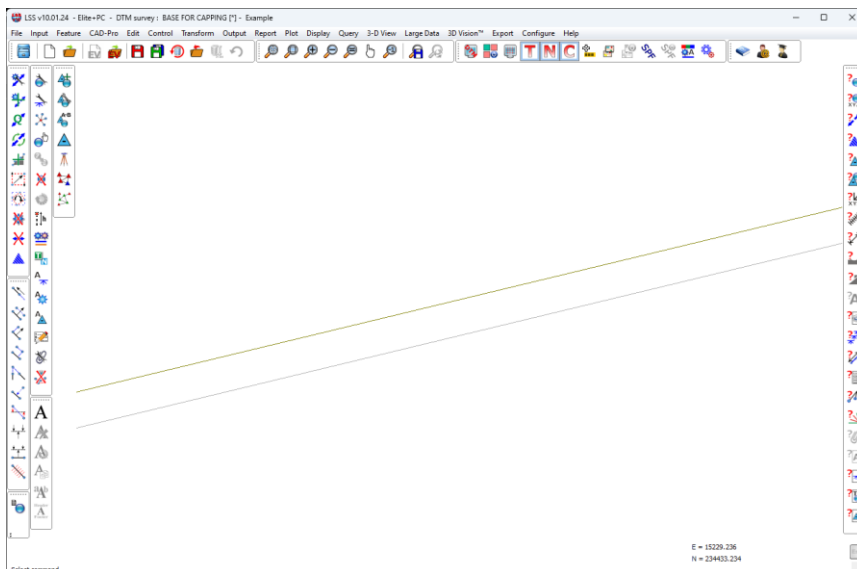
The outputted data will need to be created for the current model. So just click Next to the edit button.

We also need to ensure that all the relevant surface codes are selected, then click Ok.
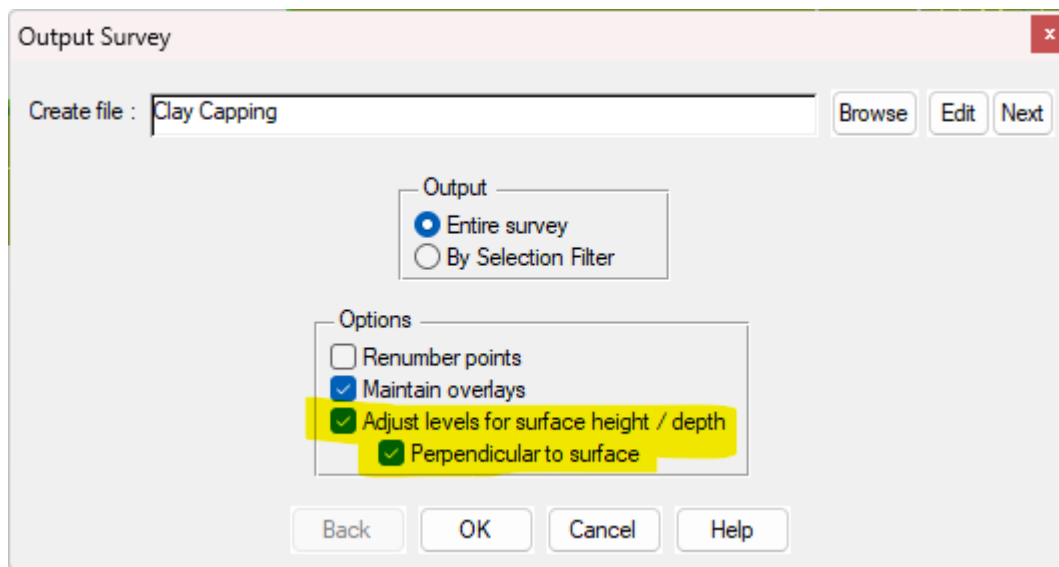

Save and Load the file.
Even though it will look exactly the same, there is now an offsetted string inside each surface.
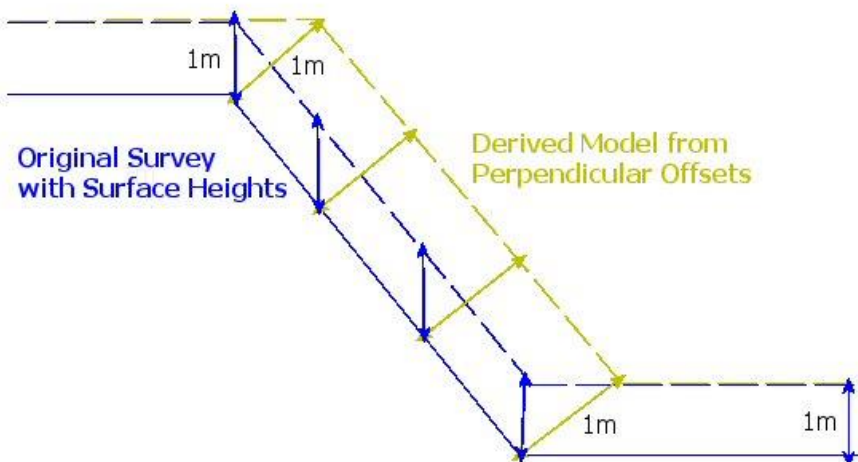
To continue with the process and create the clay capping model, we need to use the command "Output / Survey".

Specify the name of the model to create, but also we need to select the options to "Adjust levels for surface height / depth" and also to be "Perpendicular to surface".

The diagrams below shows what happens when the surface code depth changes along the line of a change in slope. To maintain a tidy model, it is suggested to avoid this i.e. create the change in surface at a slight offset to the change in slope. The special condition for this, is where two adjacent surface codes have the same depth. This can appear to give confusing results, because the application will always maintain the surface boundaries, which as a result can sometimes not appear smooth where slope changes occur.
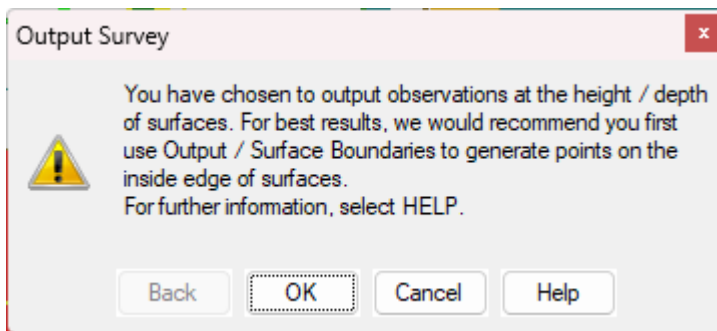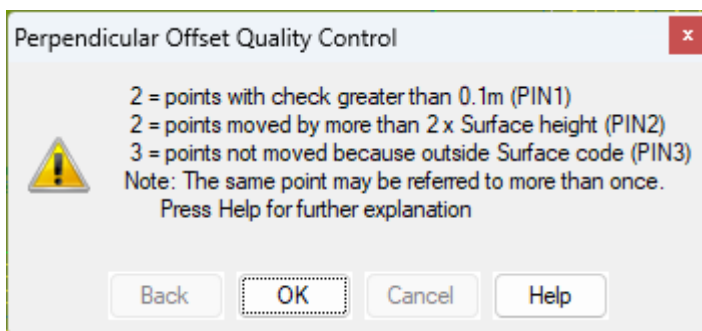
Change in surface
But all at 1m height

Surface 1

Mean of
offset triangles

Recalculated
Vertically because in
different surface
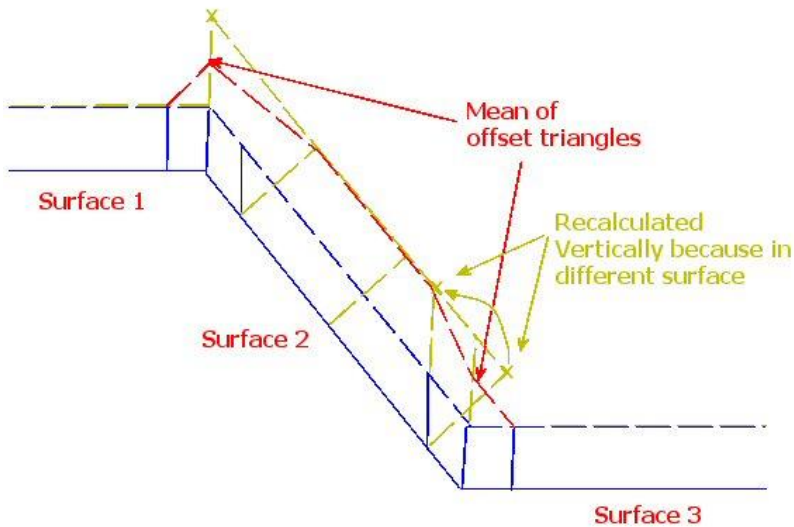
Surface 2

Surface 3

When we click Ok, LSS will display a message about needing to use "Output / Surface Boundaries". Simply click Ok, as we have already done this.

Output Survey

You have chosen to output observations at the height / depth of surfaces. For best results, we would recommend you first use Output / Surface Boundaries to generate points on the inside edge of surfaces.
For further information, select HELP.

| Back | OK | Cancel | Help |

Prior to finally Saving and Loading the data, LSS will display a Quality Control window, indicating whether there are any points that have moved out of position dur to the nature of the triangles in the DTM and problems that the calculations incurred.

Perpendicular Offset Quality Control

2 = points with check greater than 0.1m (PIN1)
2 = points moved by more than 2 x Surface height (PIN2)
3 = points not moved because outside Surface code (PIN3)
Note: The same point may be referred to more than once.
Press Help for further explanation

| Back | OK | Cancel | Help |

Quality Assurance

When the data is outputted, some points may include a point feature such as PIN1, PIN2 or PIN3.

1. **PIN1** – The new point is calculated based on the surrounding triangles. LSS will check between the original point to the new one and then if any surrounding triangles cross this line. A PIN1 feature is generated if any of these intersections are 0.1m away from the new point coordinates. The new point is not adjusted.
2. **PIN2** - where the new point is further away in plan than twice the surface height.
3. **PIN3** - where the point ends up in a different surface and is made vertical to original.
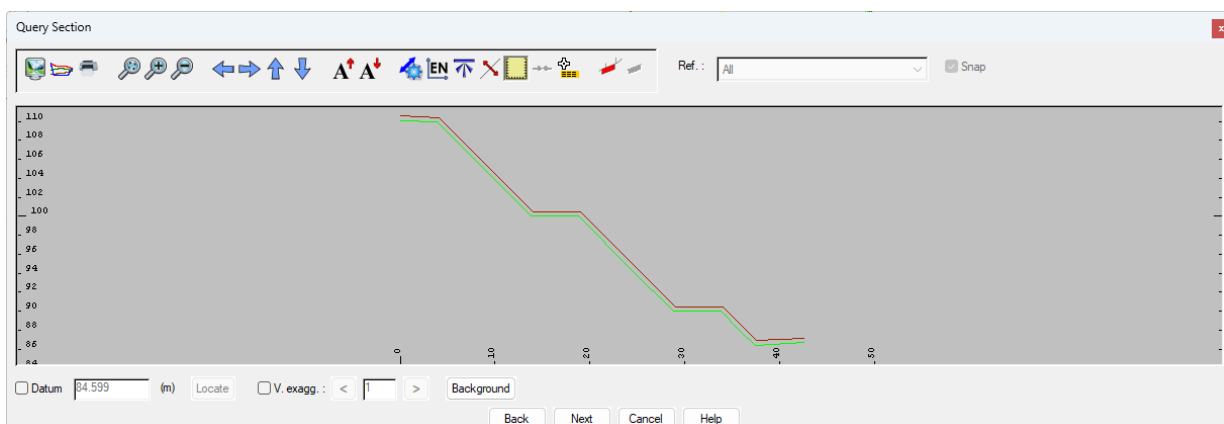
As with other commands, Save and Load the newly created load file.
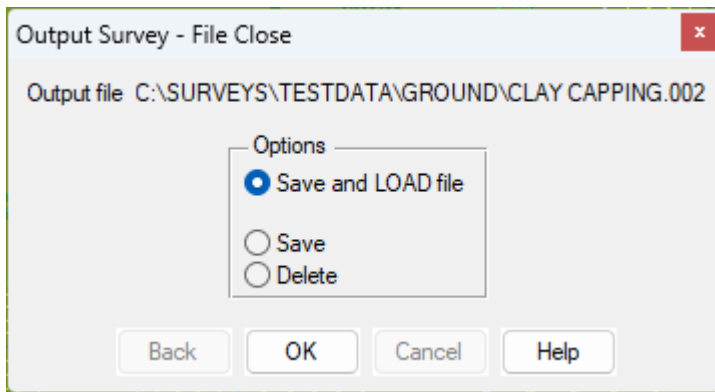
The resultant formation model should look something like this:
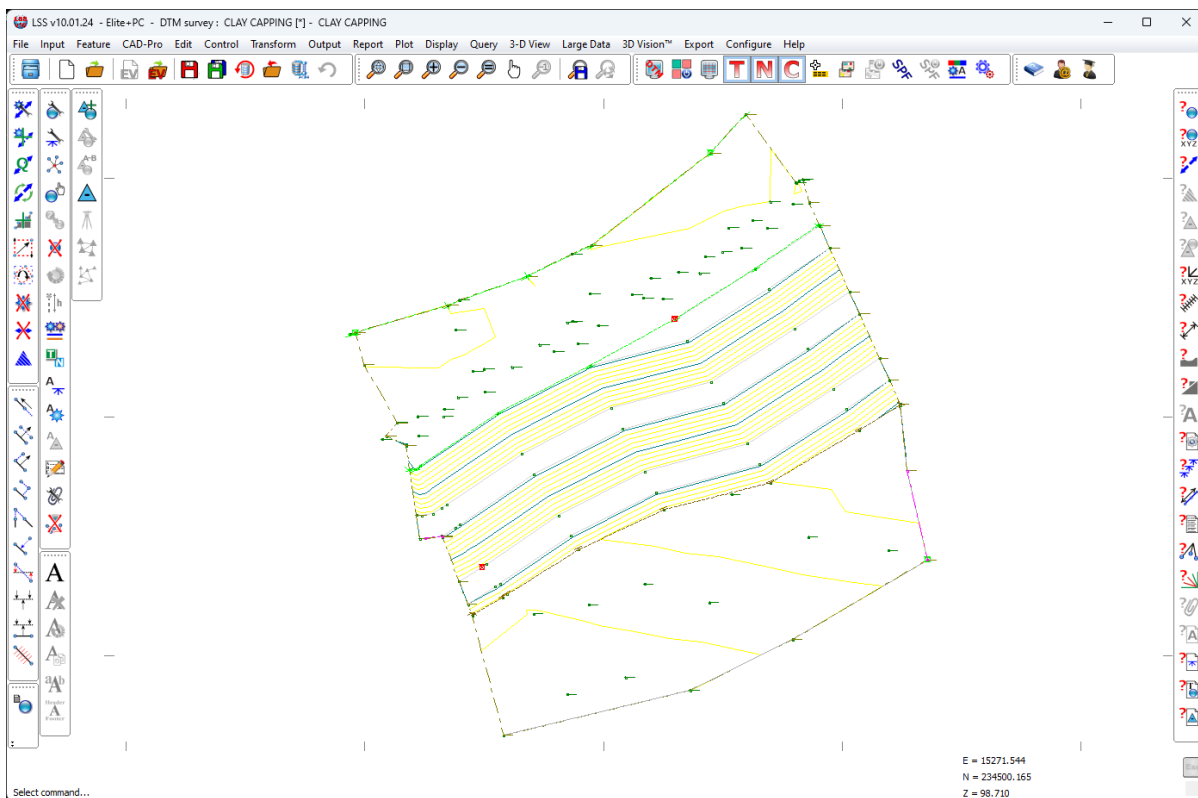
A quick "Query / Section" including the Base survey gives us a clear view of the newly created capping model.

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

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