Using LIDAR derived contours from ELVIS in OCAD

This document was created by Mark Roberts of Paradise Lost Orienteers in May 2018 as a substantial update to a documnent created in 2016 with help from Ken Dowling; this version of this living document is dated 1st June 2018.

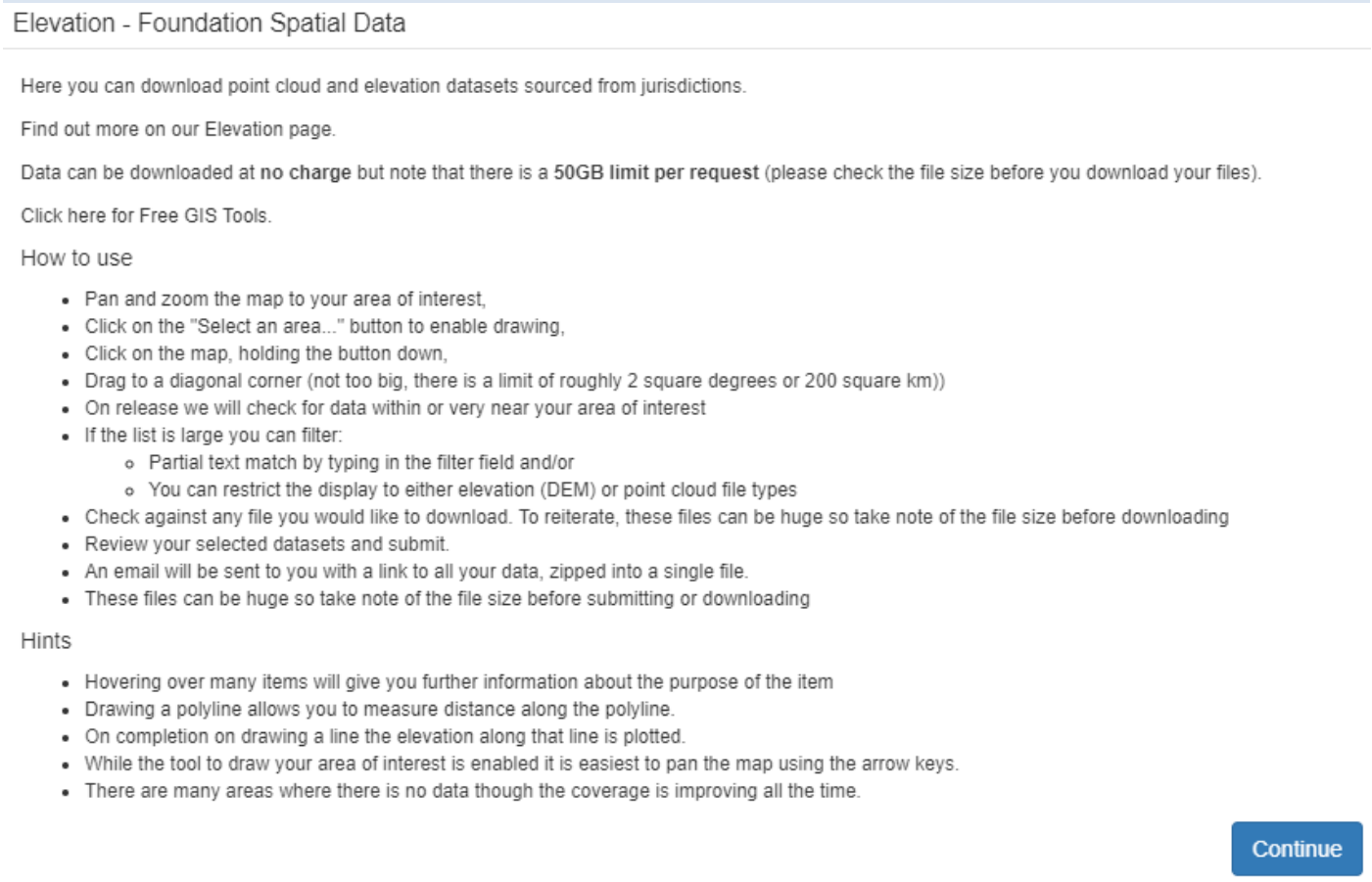
The latest version of this document is available from www.markroberts.id.au/OQ/OQ_LidarFromElvis.pdf - please do not forward this document to other readers but instead direct them to that link.

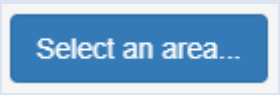
It describes how to get contours from the LIDAR DEM data available from the federal government website ELVIS into OCAD 2018. The DEM functionality also exists in a slightly different form in OCAD 10/11/12.

Downloading from ELVIS

The following has been tested with Chrome.

Go to http://elevation.fsdf.org.au/ and Continue past the splash screen if it is presented:

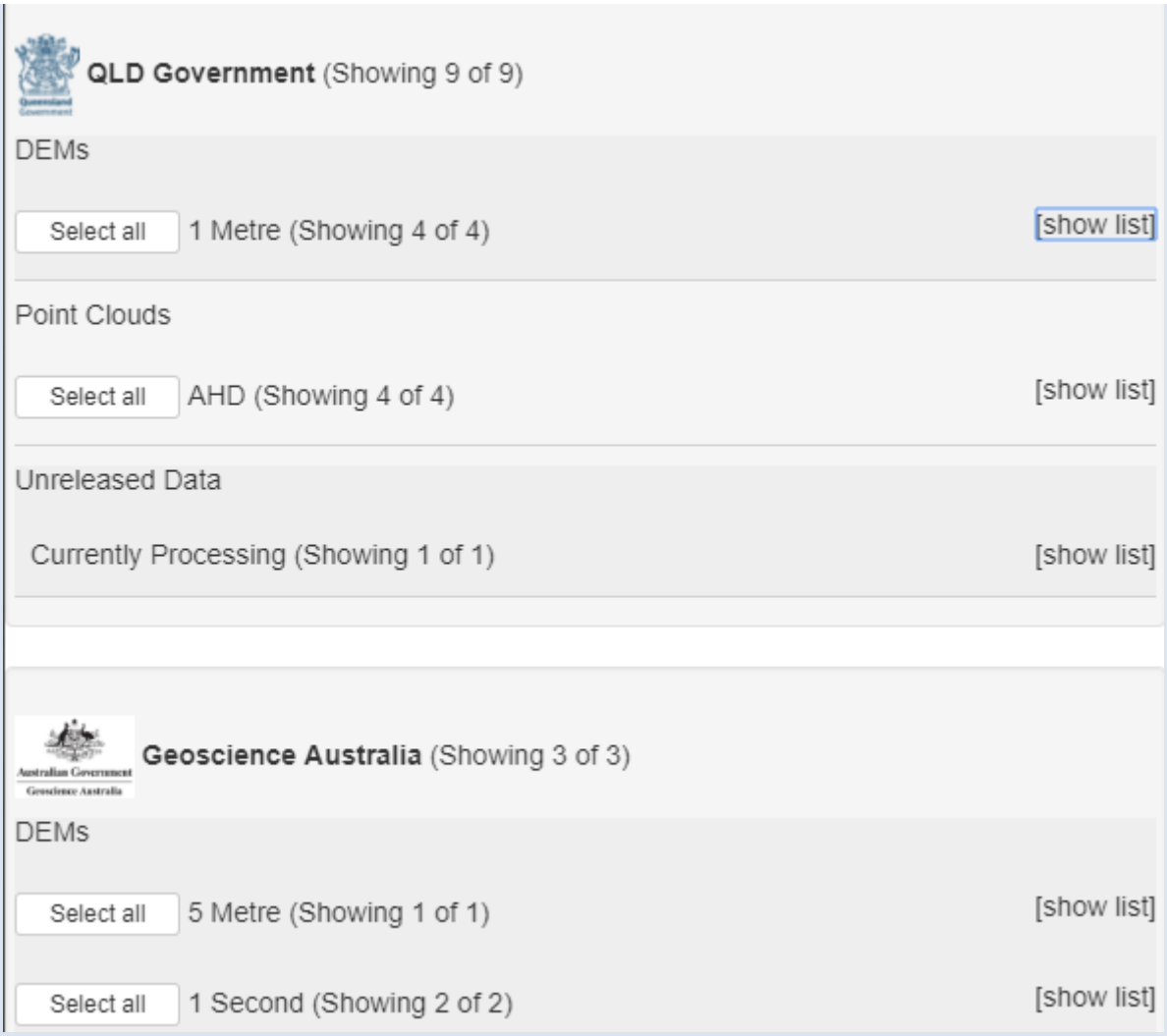




Pan and zoom to your area of interest using the mouse and mousewheel then click on

and drag a rectangle for your desired area.

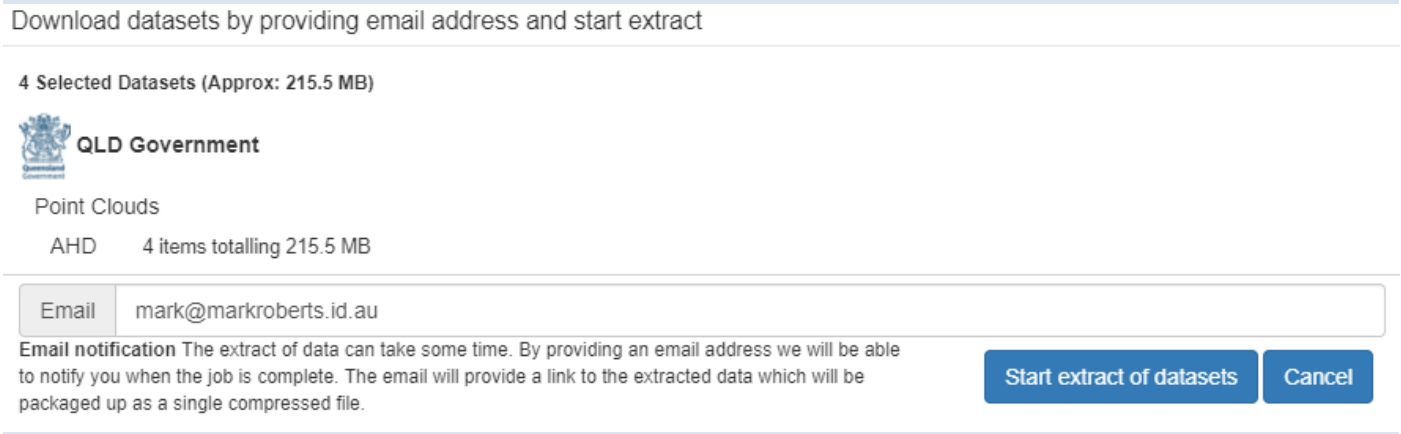
It will now present a list of available datasets for that area:



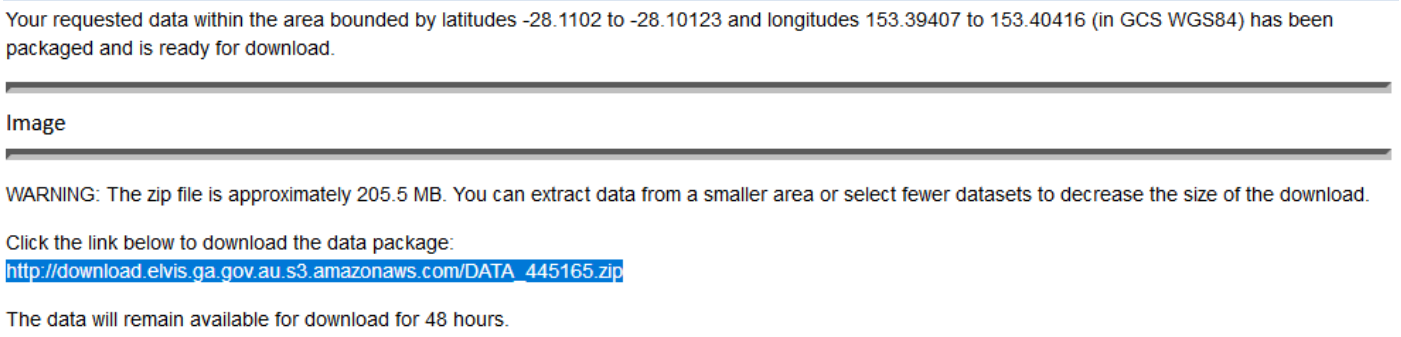
These are the datasets you want, select all:

and press the Download button which appears:

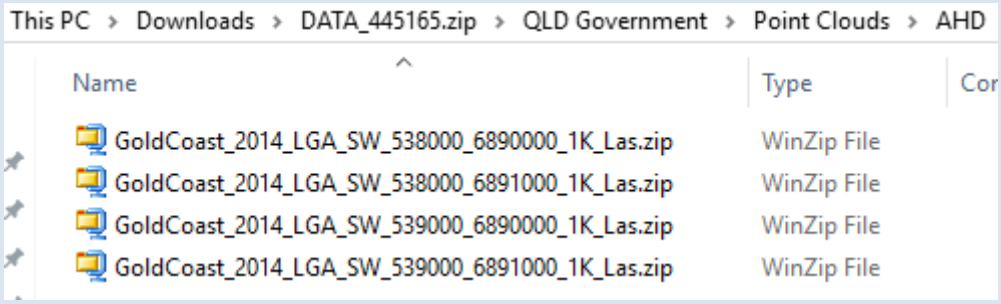
Now enter your email and click on [Start extract]:

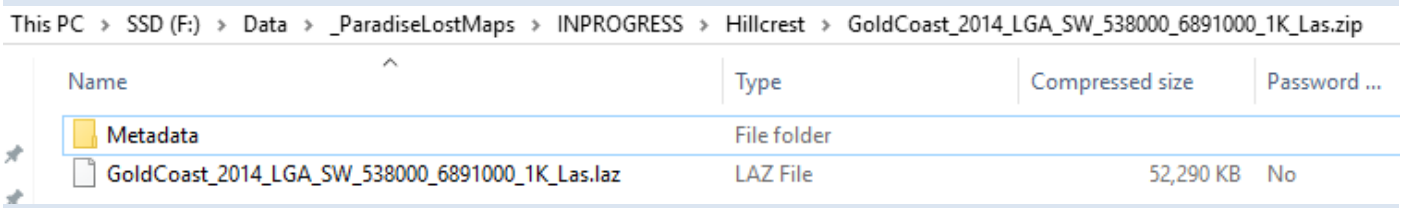


Within a few seconds (or minutes or hours) an email will arrive; click the link to download the .ZIP file. In my email client it doesn't look or act like a link so I have highlighted it in this image; I had to copy and paste into a browser to get the data:



The download is a zipped/compressed file containing a russian doll arrangement of folders and eventually a series of zipped folders with your data. I find that the easiest way to extract the data from the ZIP files is to open a second Windows Explorer window at your destination folder, and drag the **.zip** file from one to the other, then right click / Open in Explorer and again drag the .laz file from the zipped folder to your desired folder:



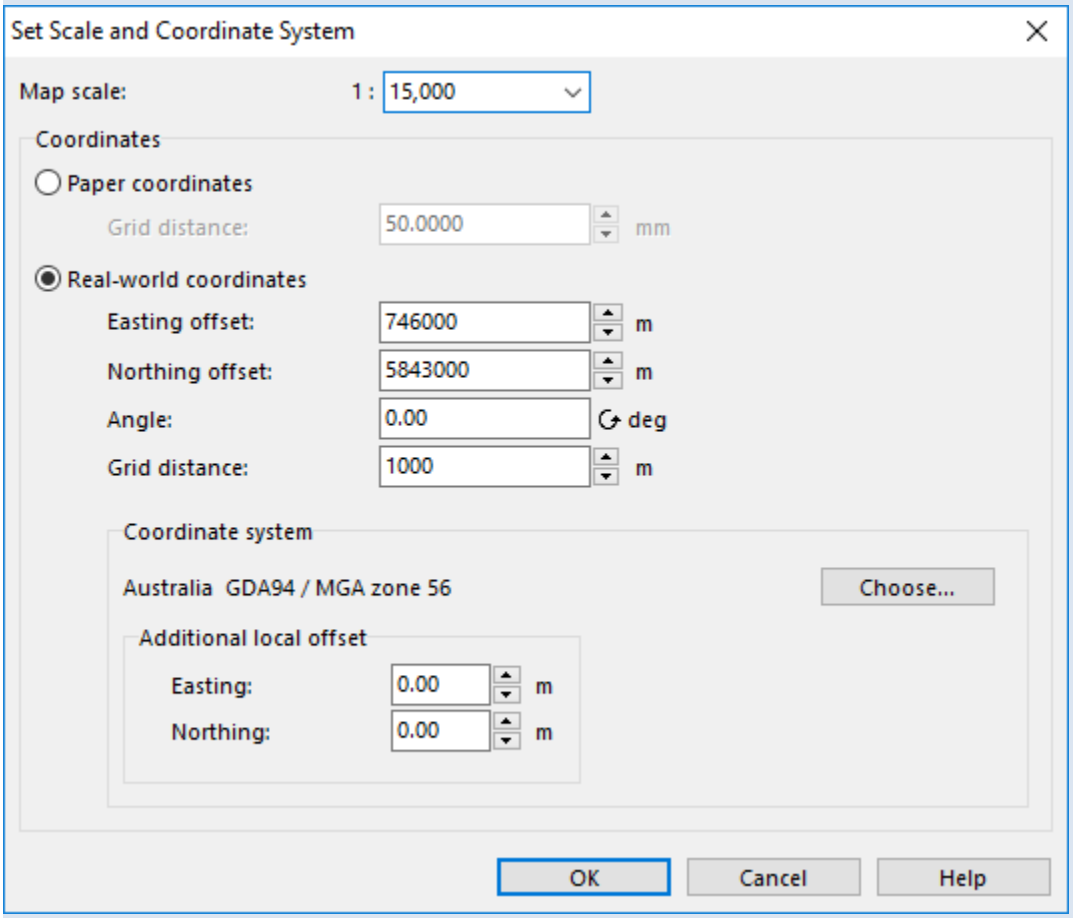


Make the OCAD file

Use OCAD to create a suitable map file first up, and save as a template to copy for later use.

The map file needs the following settings in menu **Map / Set Scale and Coordinate System**:

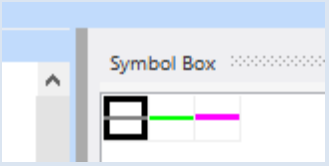
> A sensible **Map Scale**, neither very large nor very small, because OCAD may either corrupt the data with rounding errors or run out of map space.
>
> The correct **Coordinate system** for your locality; mine is SE Queensland.
>
> The **Real-world coordinates** don't seem to matter, as they will be corrected during the DEM import.



The file needs three **line symbols** suitable for 1m, 5m and 25m contours.

It might be best to make sure these do NOT correspond with the contour symbols you are planning to use in the map. This keeps your original contour data quite separate from the map you are making, until you are ready to commit to the import. See the section "Importing Derived Contours" for a discussion of why you might do this.

Here is Ken Dowling's template file symbol palette; it has only those three symbols in distinctive colours:

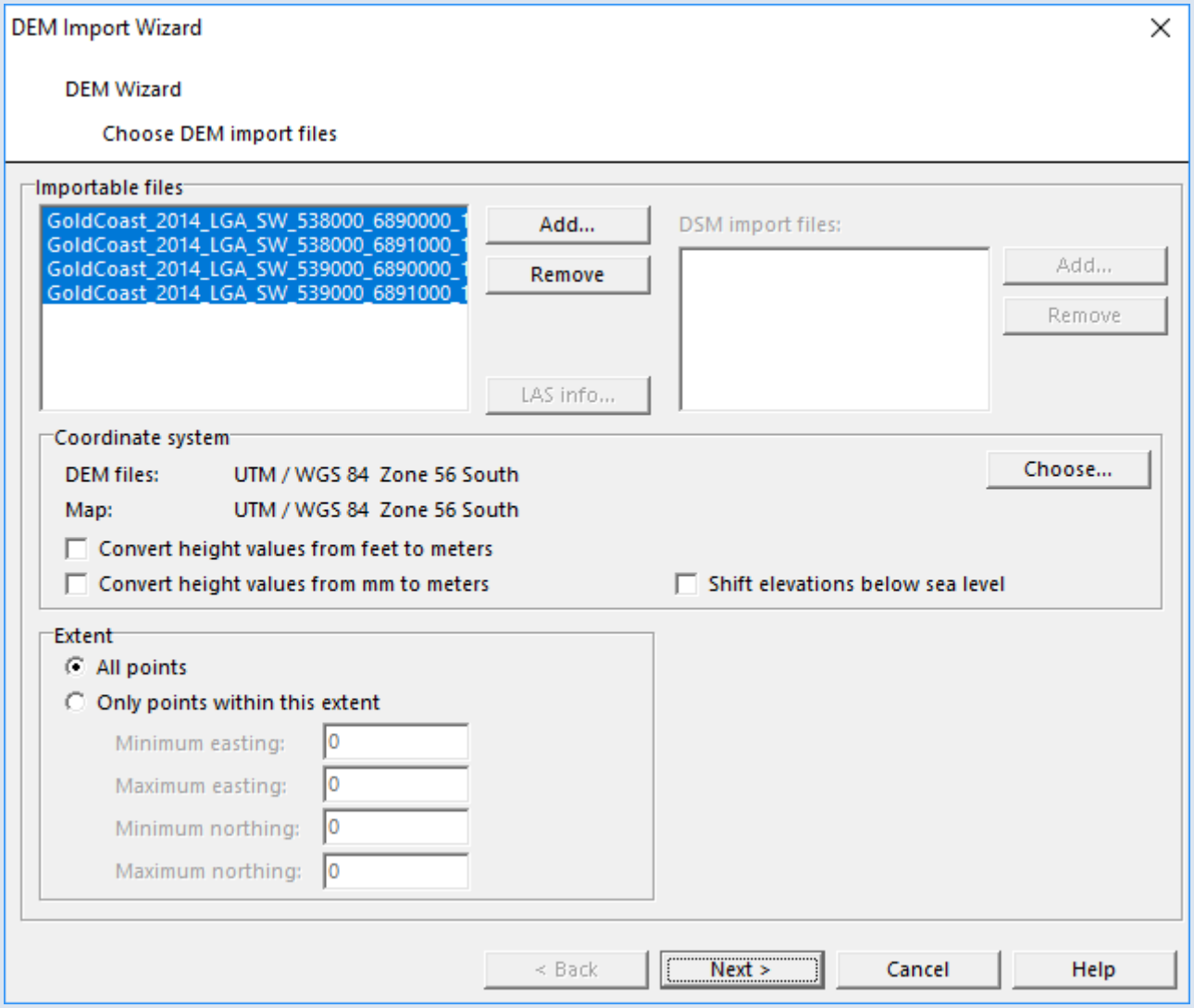


However if you plan to import the 5m and 25m contours straight into your orienteering map, those symbols can be identical to the symbols in your target file for a simpler import procedure.

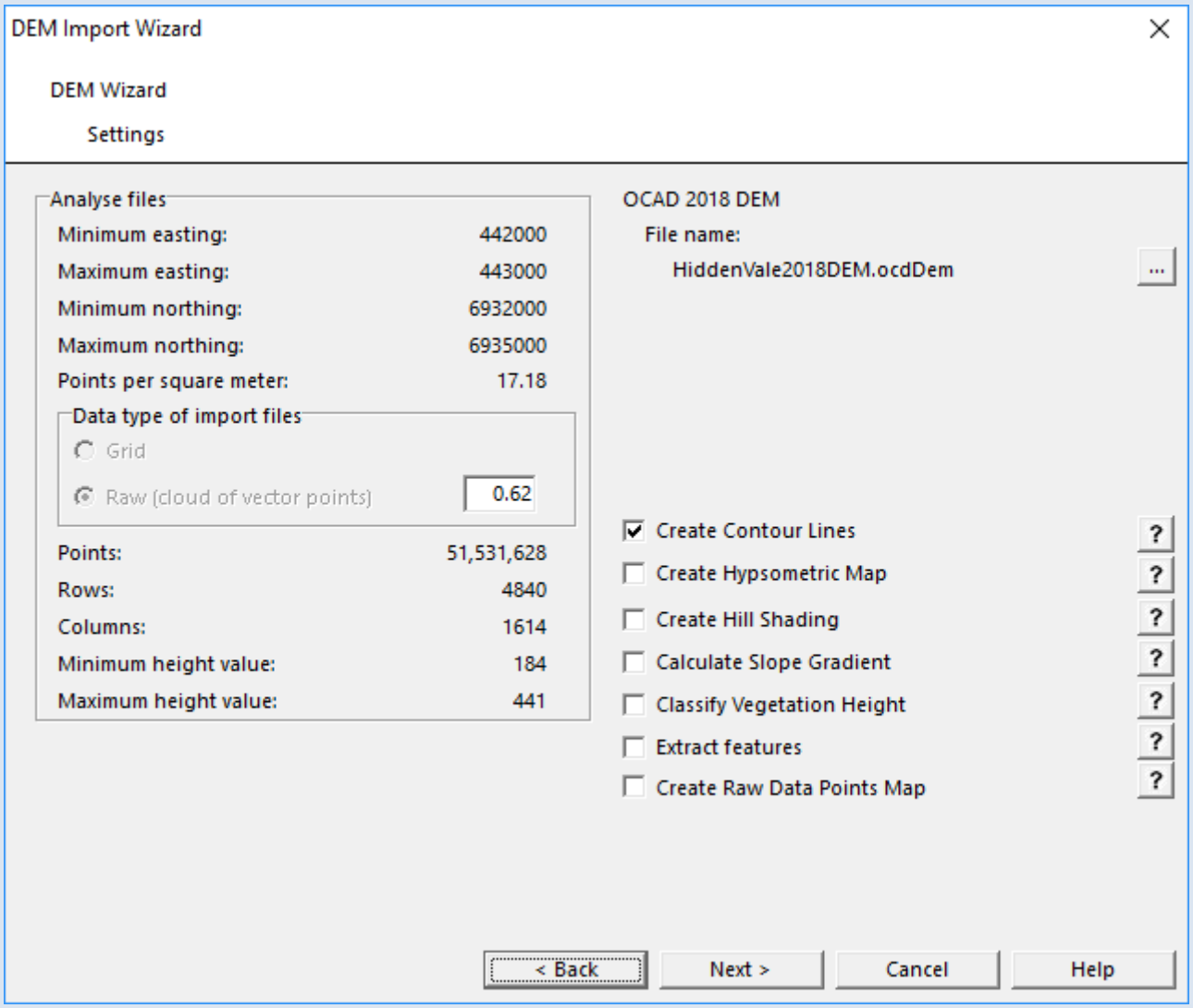
Save a copy of the empty file, maybe in the same directory as the DEM data.

DEM Import and contour generation

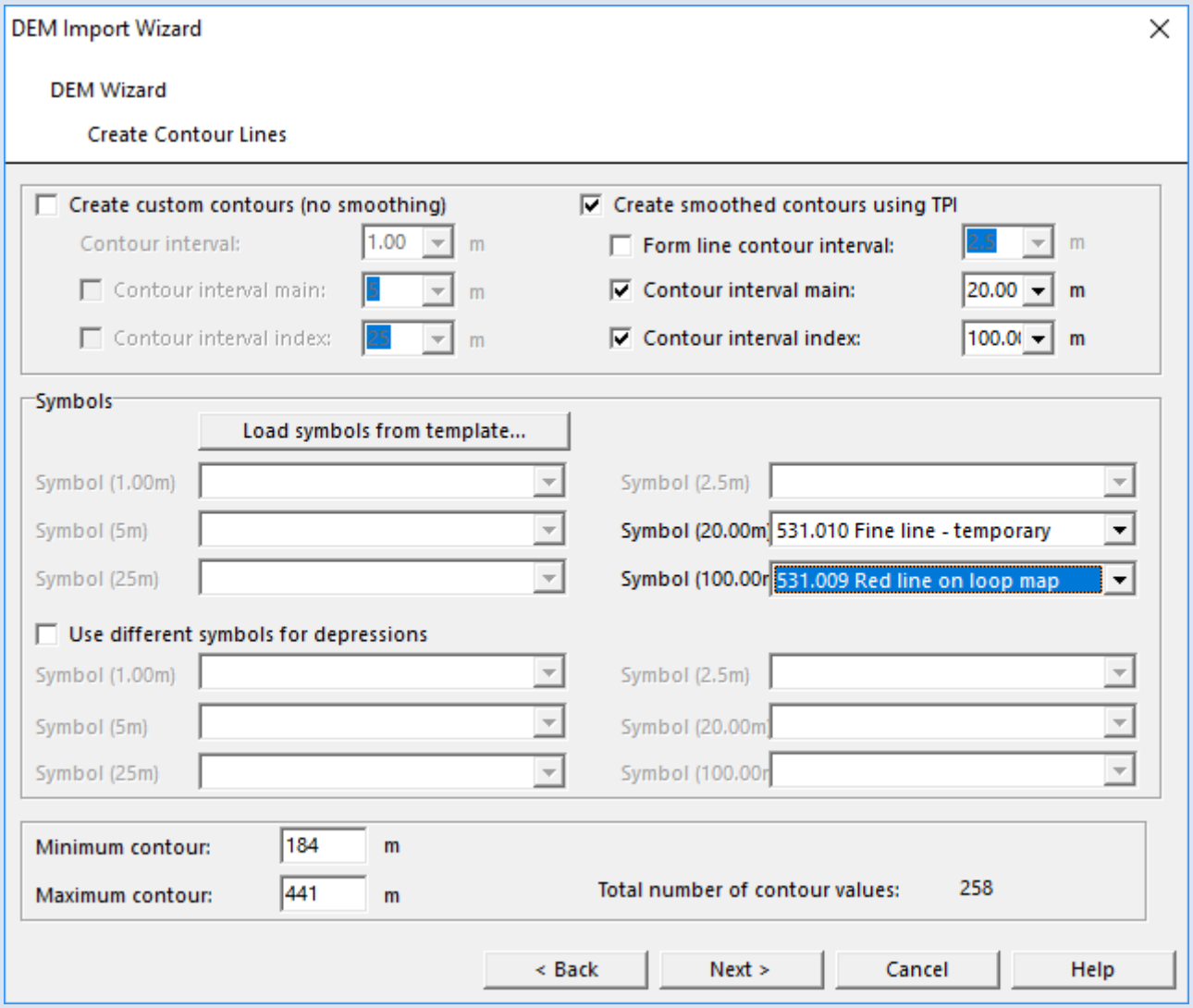
Click **DEM / DEM Import Wizard,** click Add... and select the **.ASC** file, make sure the window looks like this and click Next > [NB – my PC ran out of memory when I selected all 4 files, I had to do them one by one.]



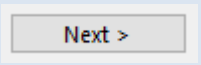
Select what you need and click [Next]:



Select the line symbols you waht, check it looks like this,



and click:



- Can handle only a limited number of files, three fior example

- Don’t need DSM only DTM for contours

- Intensity thing is very useful for subtle stuff like fences

- Contours imperfect at edges if separately imported

- Don’t import non-contioguous files, result very bad

- Some settings have to be reapplied every time

- Switch off “load templates” x 2

Importing derived contours into your map

So far we have assumed that your map file full of contours is not your target map, but an intermediate step towards that, because:

- You probably don't want the 1m contours in your target map.
- 1m contours may however be useful as a background map.
- You probably don't want all of the rectangular-shaped download in your target map.
- You may need to experiment repeatedly with smoothing the contours.
- You may need to delete some contours depending on your chosen contour interval.
- You may prefer to use the LIDAR contours as a basemap, then redraw contours in the field.
-

Here are some hints for when you choose to import selected contours from another OCAD file into your target map file – or use it as a background map.

To export a selected area of the map use menu **Map / Export part of map.**

To export only the 5m and 25m contours use menu **Map / Export objects by selected symbols.**

First make sure your target map:

- Is georeferenced
- Uses the same coordinate system
- Has the same scale as the contour map – (otherwise offsets may not be corrected when importing)
- Has the same magnetic declination (when using as a background map)

During the import select **Use real-world coordinates** and **New offset.**

Much could be written about how to handle the symbols for the imported contours.

If you have special symbols in your contours file and you don't want to mess up your target map symbol set, when importing them select **Do not import any symbols or colours**. Now select a contour, select your contour symbol, and use Object / Change all object with same symbol; the same for index contours.