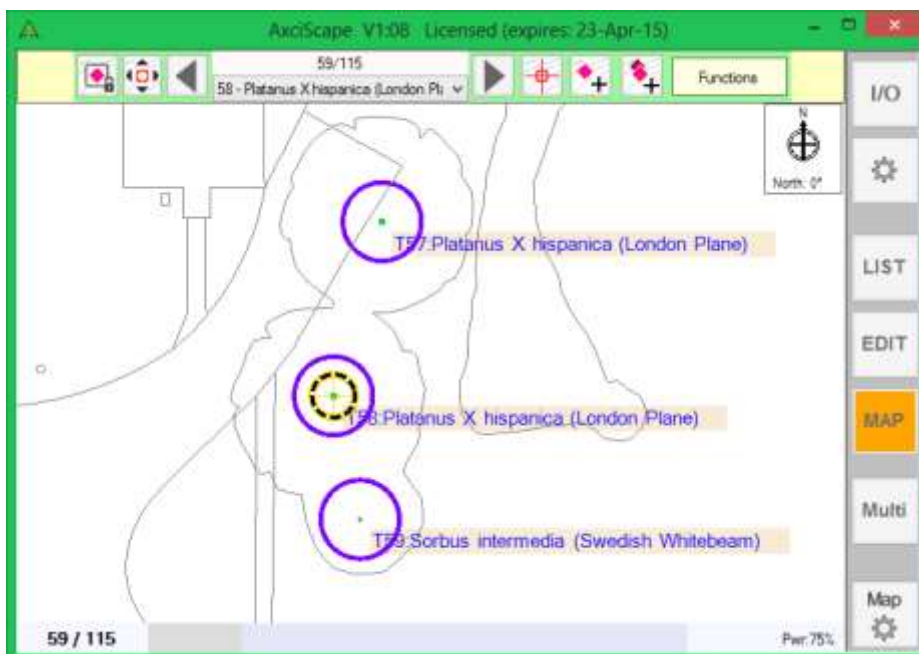
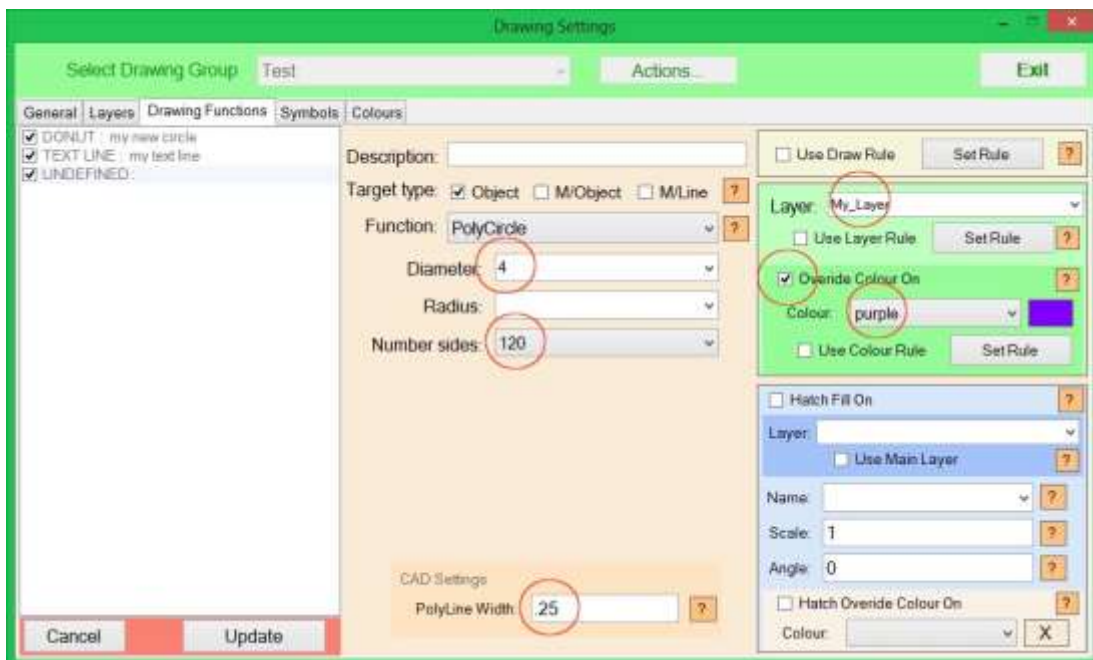


## Axciscape Drawing Entities – Part 2

We looked at Circle, Donut and Text Line in Part 1. This document takes a look at the remaining functions and carries on using the same Axciscape example.

**PolyCircle:** The polycircle function is basically a closed polyline (closed means that the last vertice joins back to the first) drawn as a circle. It can have different numbers of vertices equally spaced. The higher the vertice count, the smoother the polycircle will look. In the following image I have added a new polycircle, set its diameter to 4 with 120 vertices (or sides). I have also set its colour to purple. One additional item I have set is the line width which is .25m wide.

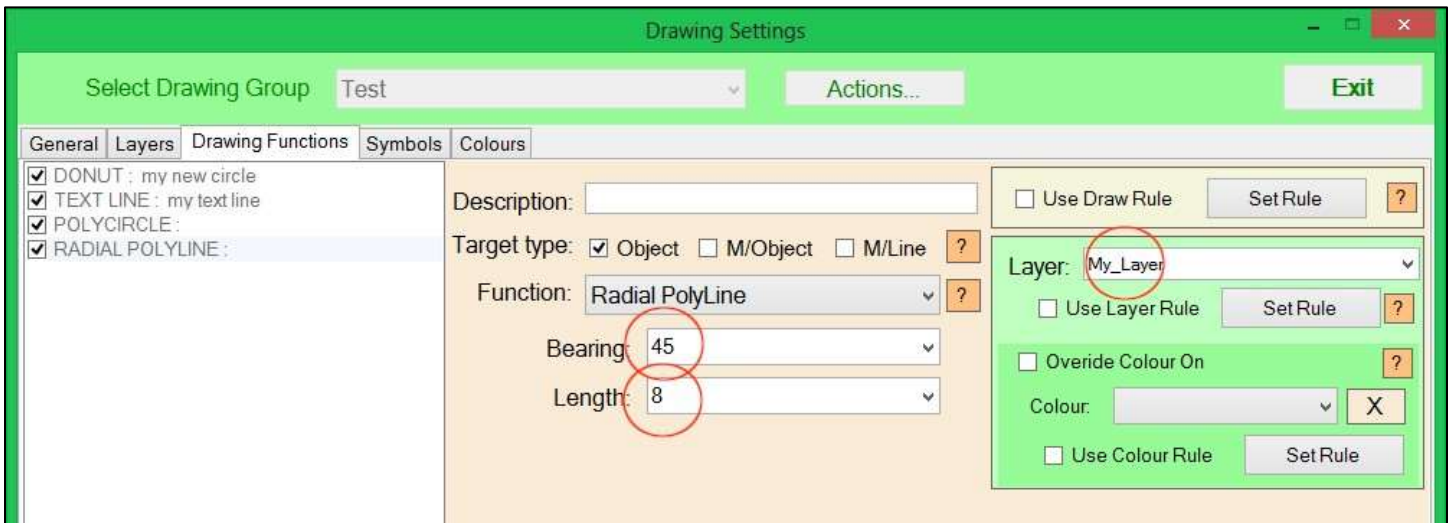


The resulting map display shows the thick purple polycircles.

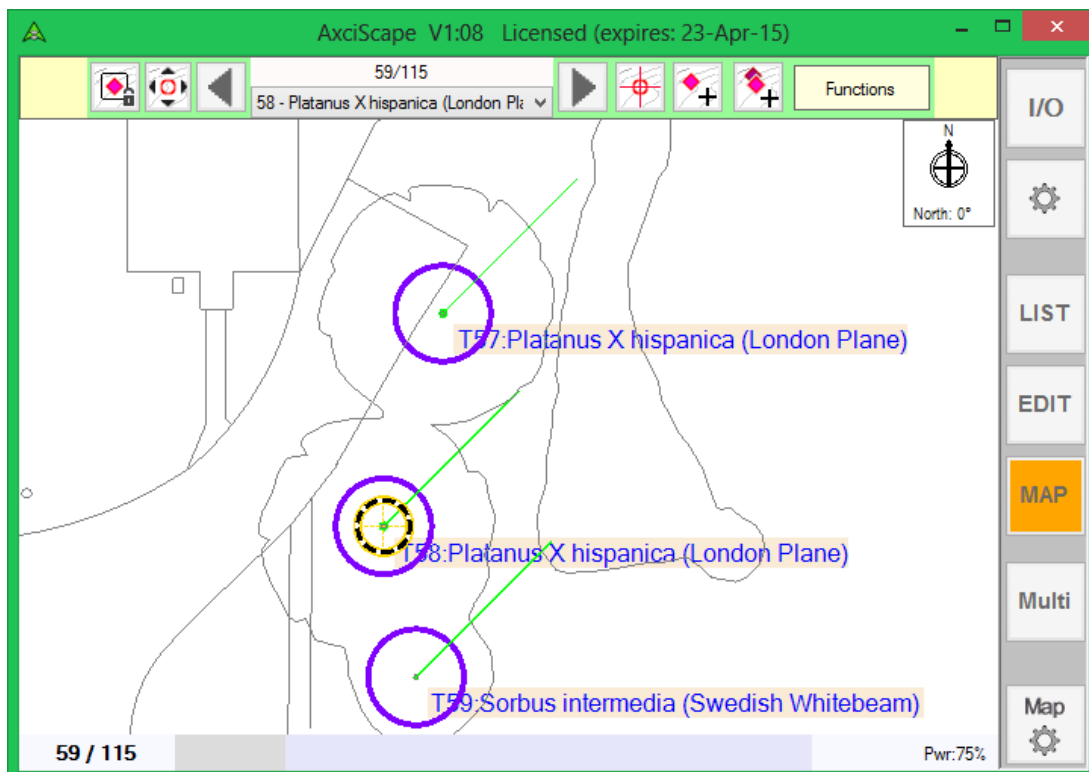
The advantage of drawing a circle as a polyline is that once exported to CAD the circles shape can be adjusted by moving individual vertices.

**Radial PolyLine & Radial ArrowLine:** These functions draw a single line with one end starting at the X/Y position and the other end drawn using a bearing and line length value. The bearing is measured clockwise with zero being at 12 o'clock (or north). The arrowline version simply adds an arrowhead to the line.

The following image shows this function added to the drawing list with an angle of 45 degrees and a length of 8. It should appear as a green line as I am not using a colour override.

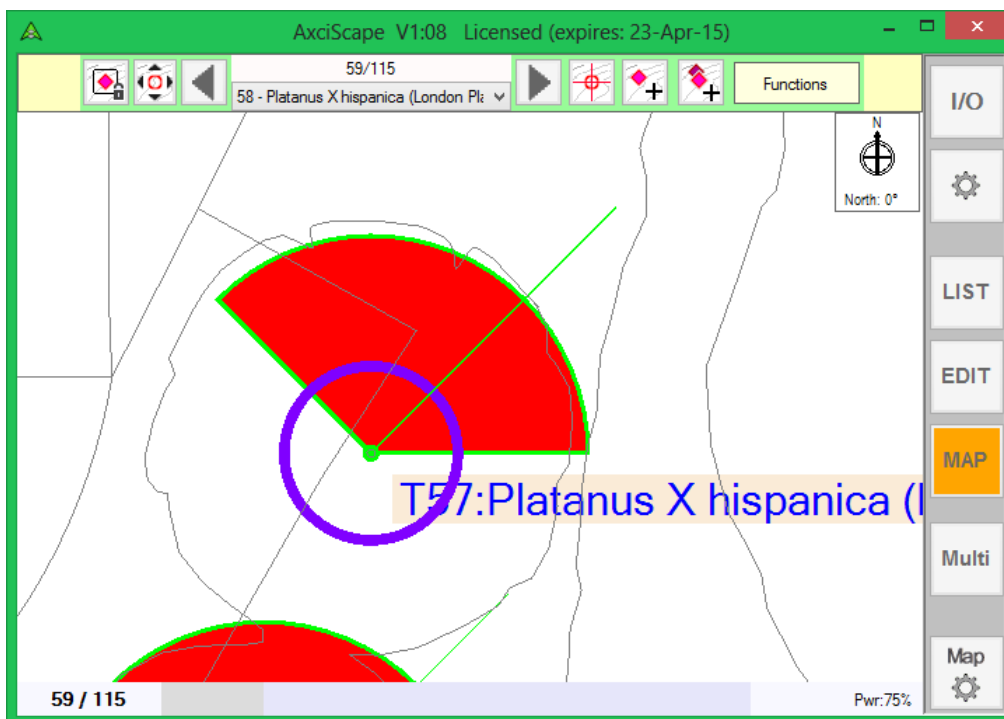
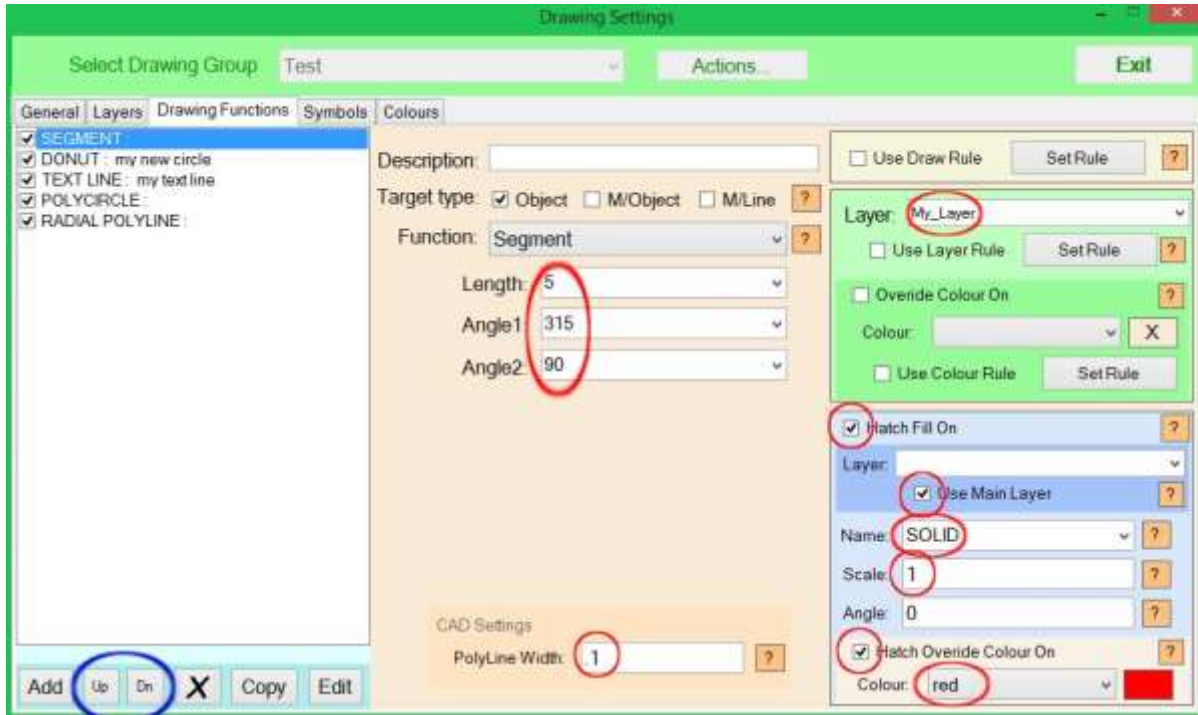


The resulting display showing the line drawn from XY centre at 45 degrees clockwise from north. The line is 8m long.



**Segment:** This function will create a pie using an arc and two straight lines. It requires a length value which represents its radius from the X/Y center and a start/end bearing (angle 1 and angle 2).

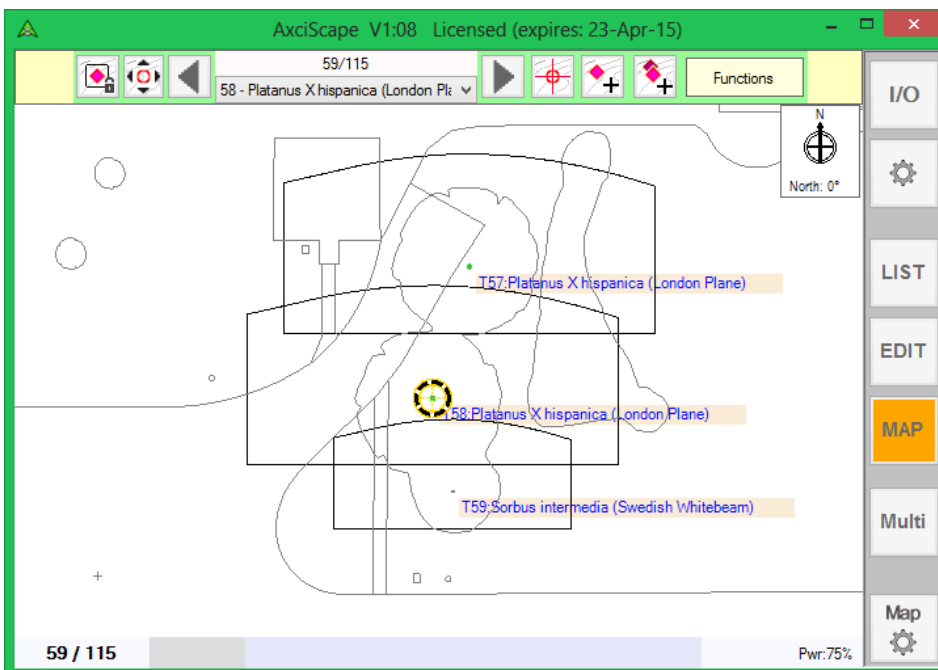
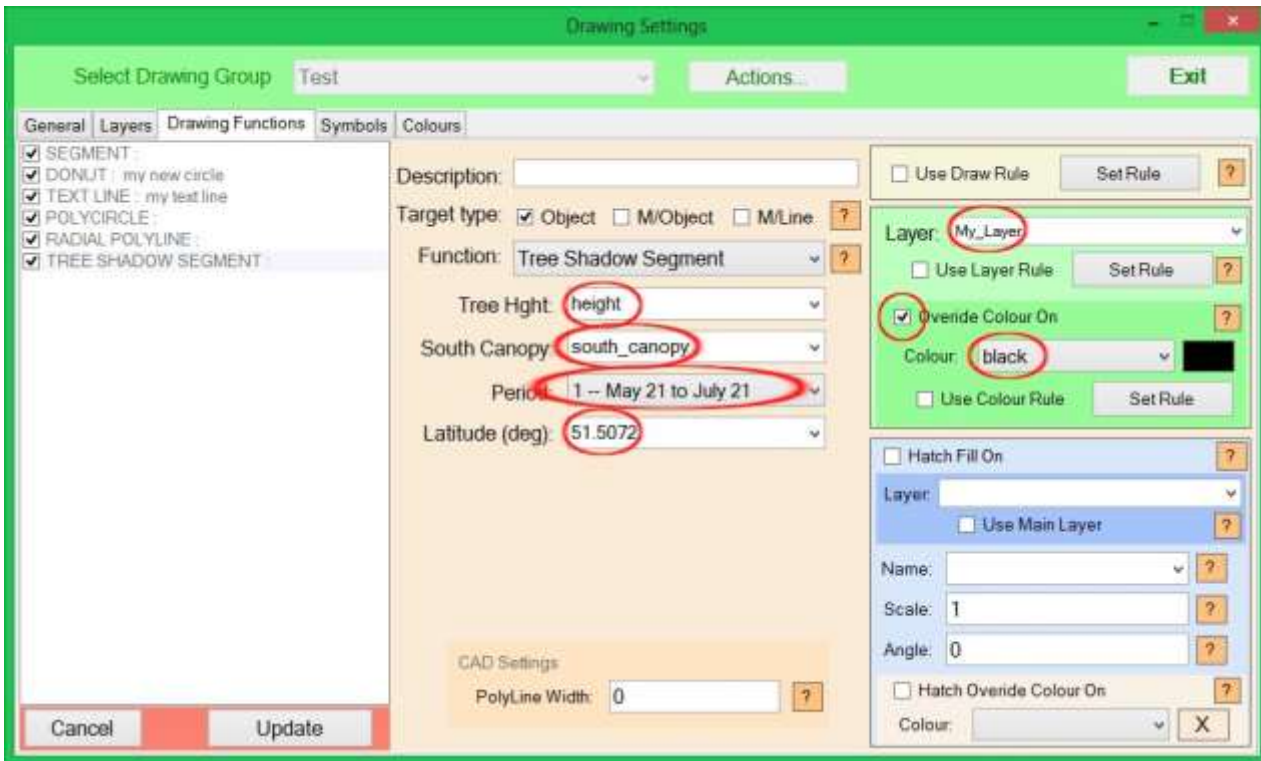
Such an item can be used to represent the BS5837 shadow intrusion item which uses an arc running between northwest and east (represented as a bearing of 315 and 90). For proper use the length value would be set to the tree height field value instead of the 5 which I have entered. In this example I have also chosen to fill the segment outline with the colour red. To do this I have switched the fill mode on, told it to use the same layer as the outline, set it to show a solid hatch and set the override colour to red. I have also used the Up & Down controls to move the segment to the top of the list. This is so it is drawn first, otherwise it will mask out the other map items due to its hatch.



The resulting image showing the segment drawn between N/west and due east with a 5m radius. Its outline is green because it has adopted the layer colour but the hatch colour has been overridden in red.

**Tree Shadow Segment:** The shadow segment shows the extents of shadow movement over the course of a day for a defined period of the year. The trace is drawn as a closed polyline.

We need to define the tree height and south canopy extent for a given tree. I have selected these fields below and also defined the period of the year being May 21<sup>st</sup> to July 21<sup>st</sup>. I have set the latitude to London for this example and am using the colour black to draw the outline.



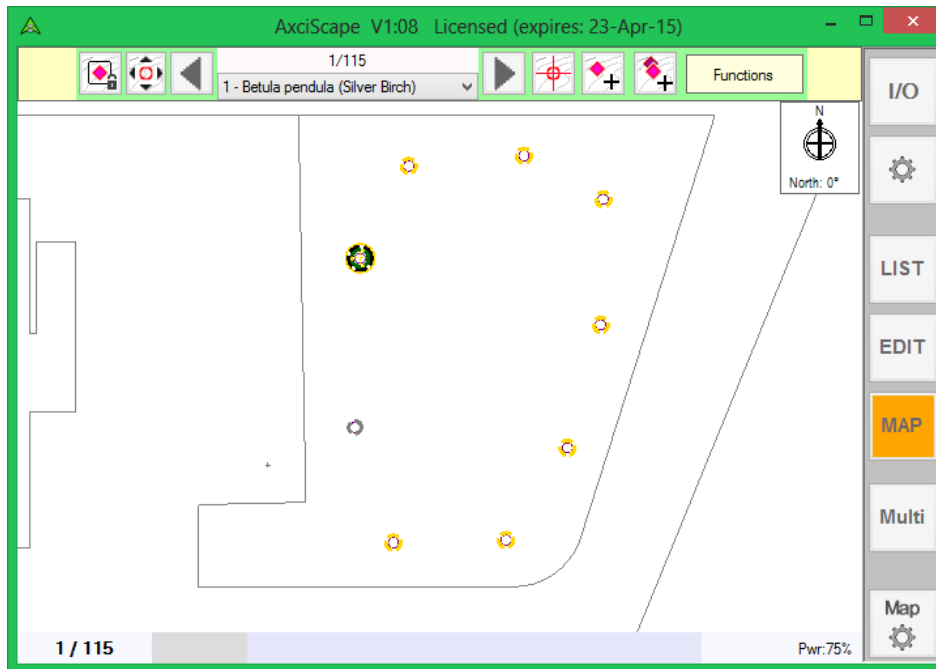
The resulting map display showing the black outlines representing areas touched by the trees shadow for the latitude and period chosen.

I have switched off some of the other functions for clarity by unchecking them.

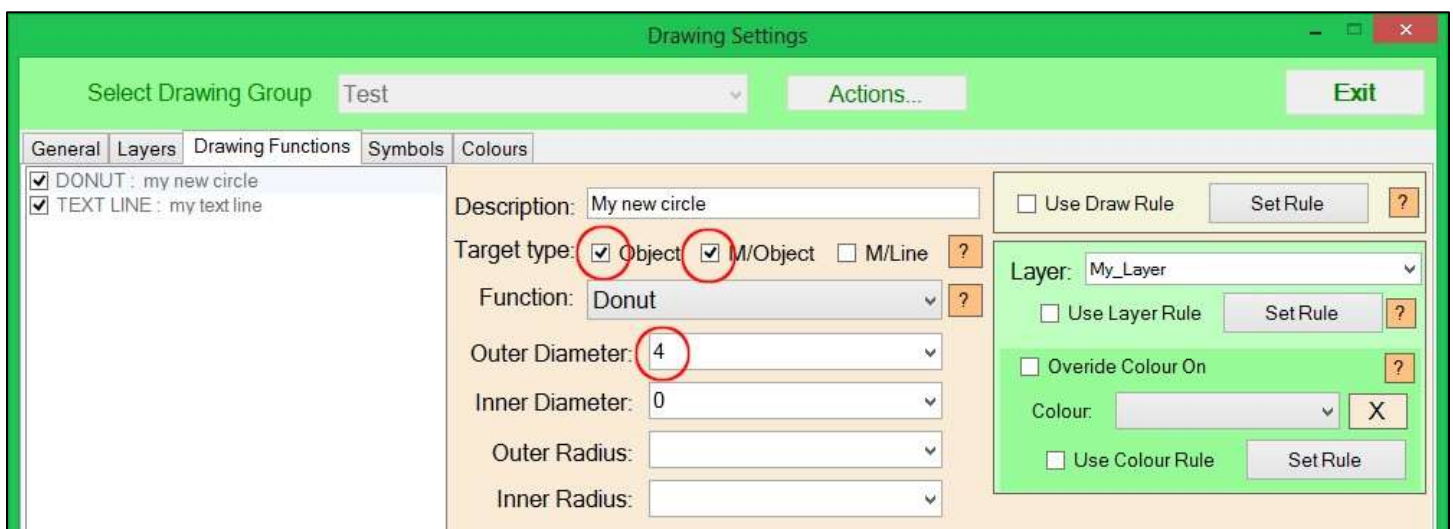
## Multiple Vertices

For the following examples I have replotted T1 of the demo file with multiple object vertices. T1 is currently set to show Multiple Objects (where the same data is duplicated for every vertice).

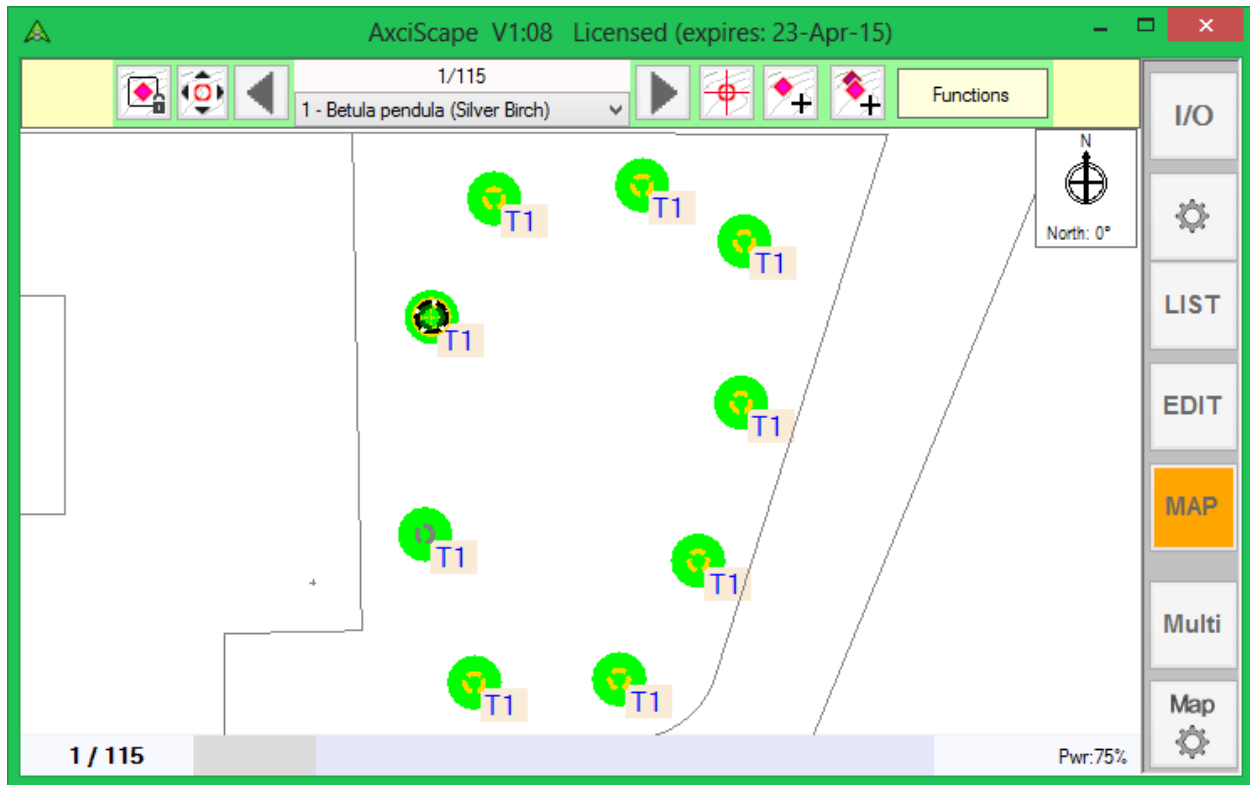
As you can see, no data is displayed because we have set the target object setting for every drawing entity to a single object.



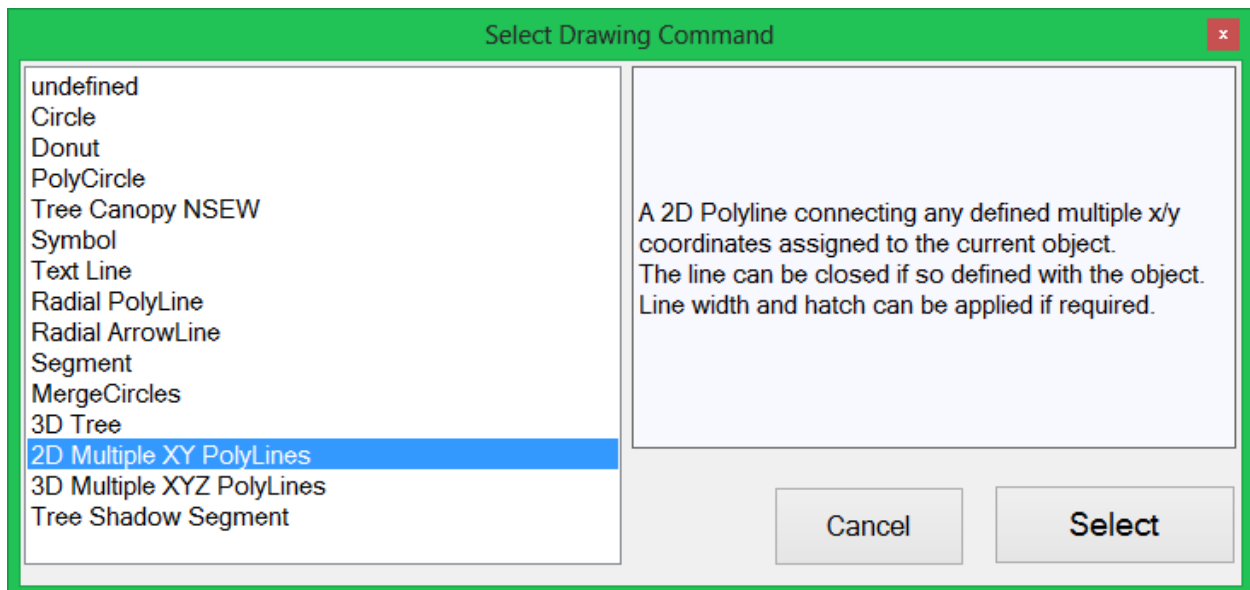
Going back to the settings interface I have now removed many of the entities except for the Donut and Text Line. I have set the Donut diameter to 4 for clarity and this time I have **ticked two target types** so that the entity will be drawn to trees which have 1 X/Y vertice and also those which have multiple X/Y's. Also for clarity I have removed the name field from the TextLine.



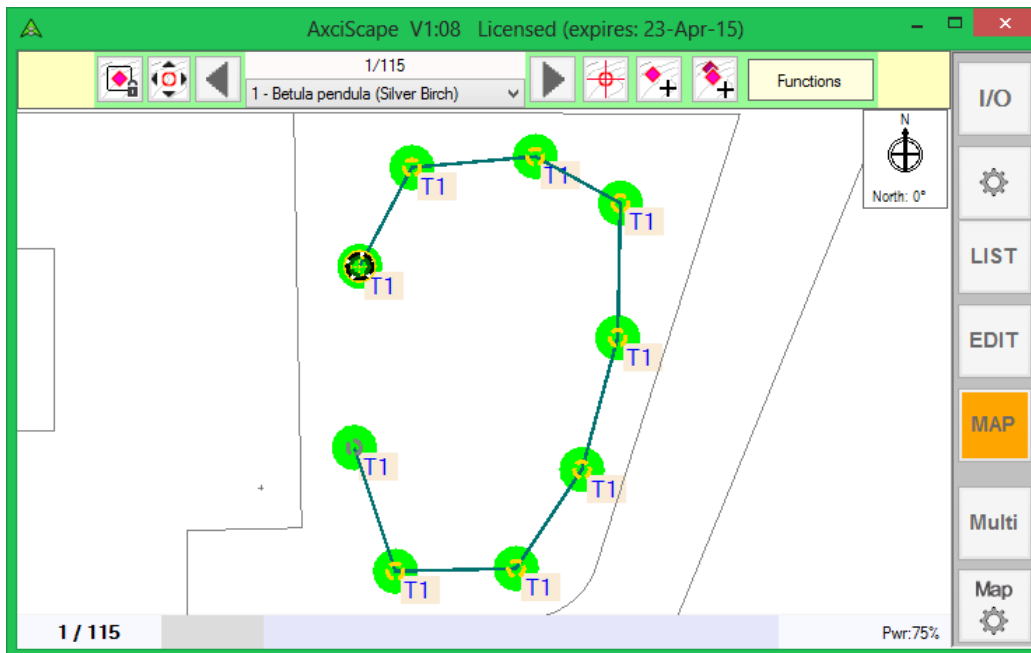
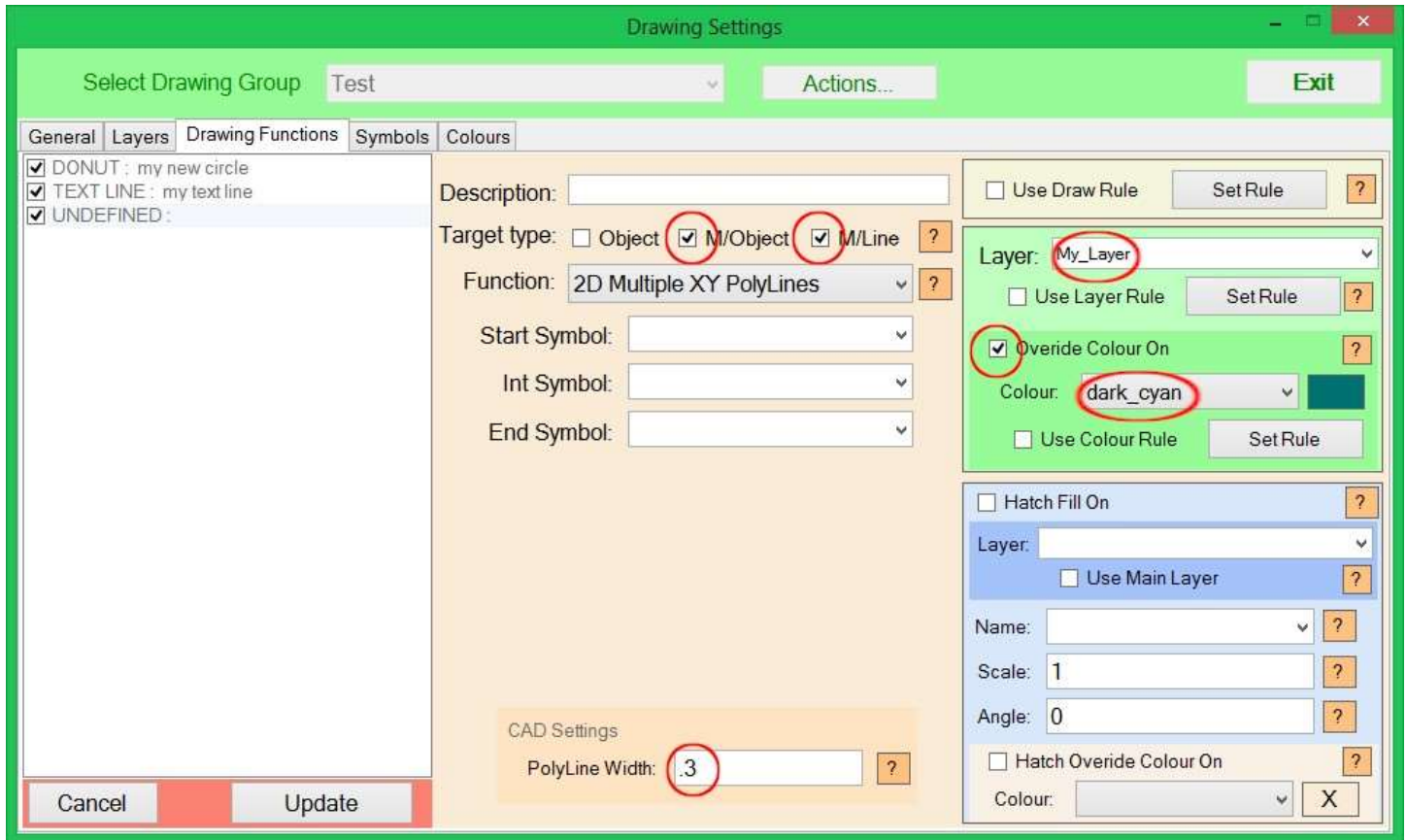
The resulting display showing the Donut and Text drawn against every vertice of T1.



**2D Multiple XY Polyline:** Returning to the map edit settings interface I have selected 'Add' from the lower left menu and am picking the '2D Multiple XY Polyline' function (see below). The 3D version is identical but supports the Z (elevation value) which can be exported with the polyline to CAD.



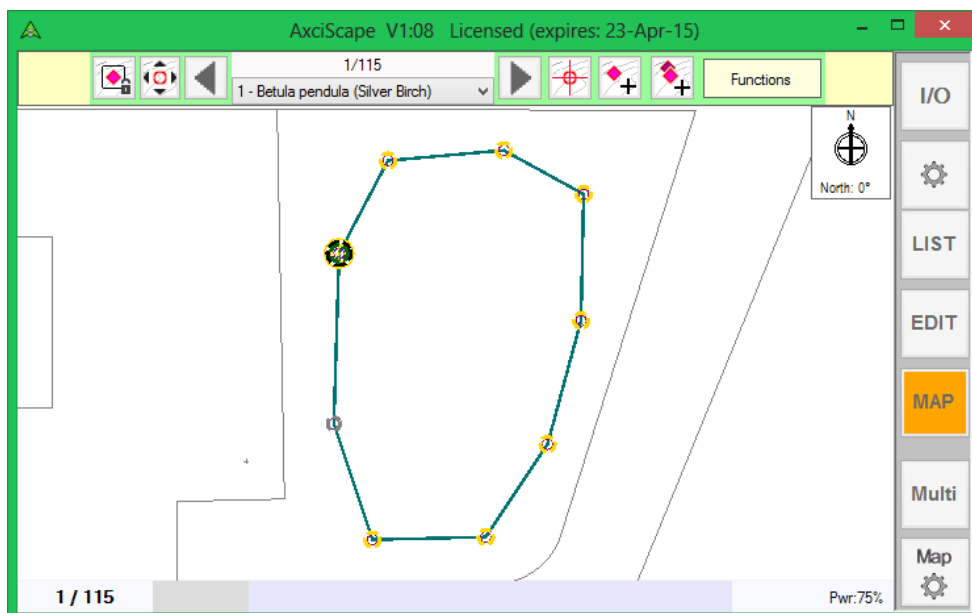
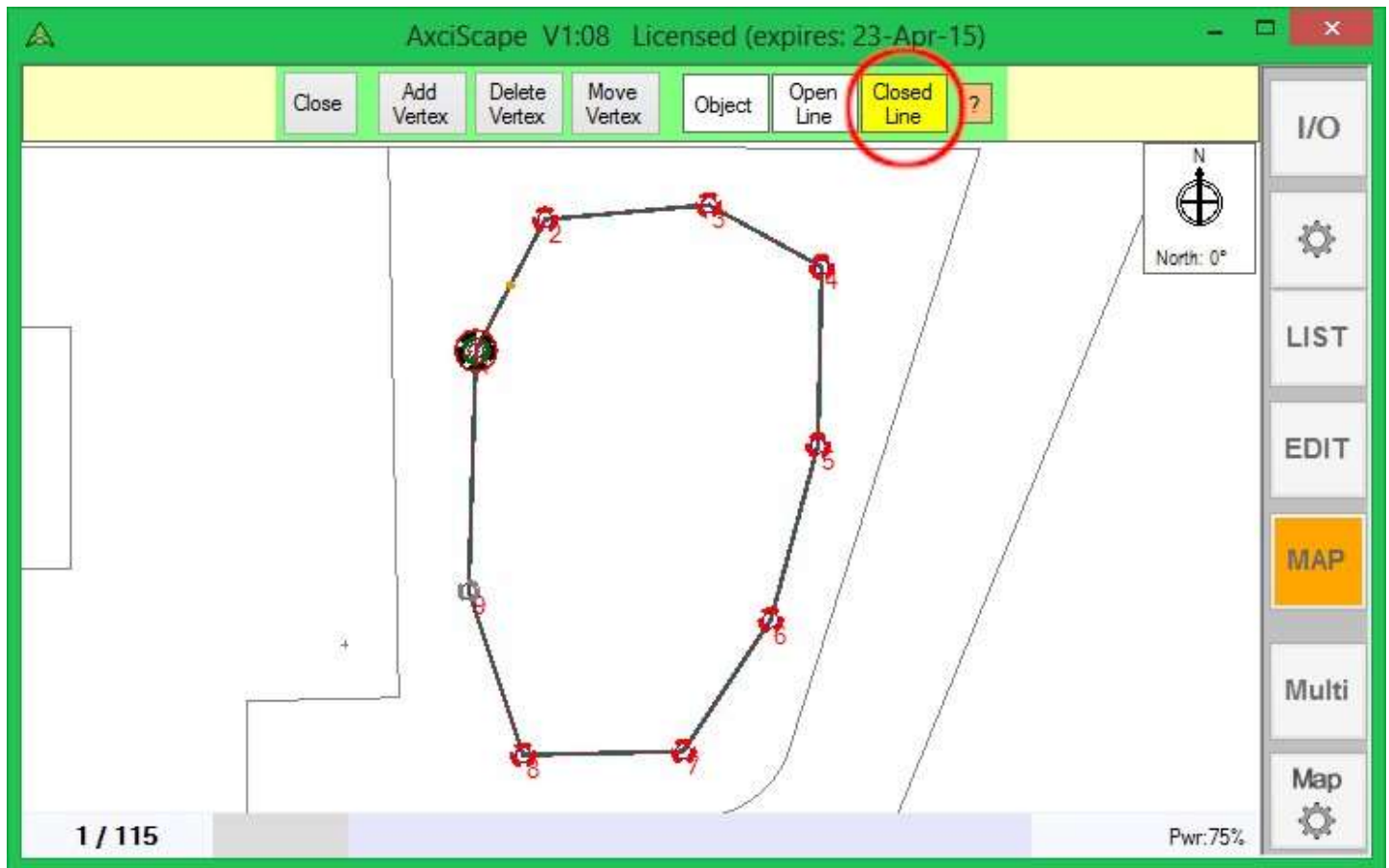
The '2D Multiple XY Polyline' function draws a polyline between multiple vertices. It has no effect on single vertice items. It can be applied to a database record which is defined as Multiple Objects or as a Multiple Line. I have selected both types in the image below along with colour override and line width of 300mm.



The display shows the connecting line. It doesn't close (a link between the first and last vertice) as the T1 record XY type is still set to multiple object.

To change the database T1 record multiple XY designation whilst on the map screen click on the  icon.

The vertice control menu appears and I have changed its designation to 'Closed Line' as below. Select 'Close'.



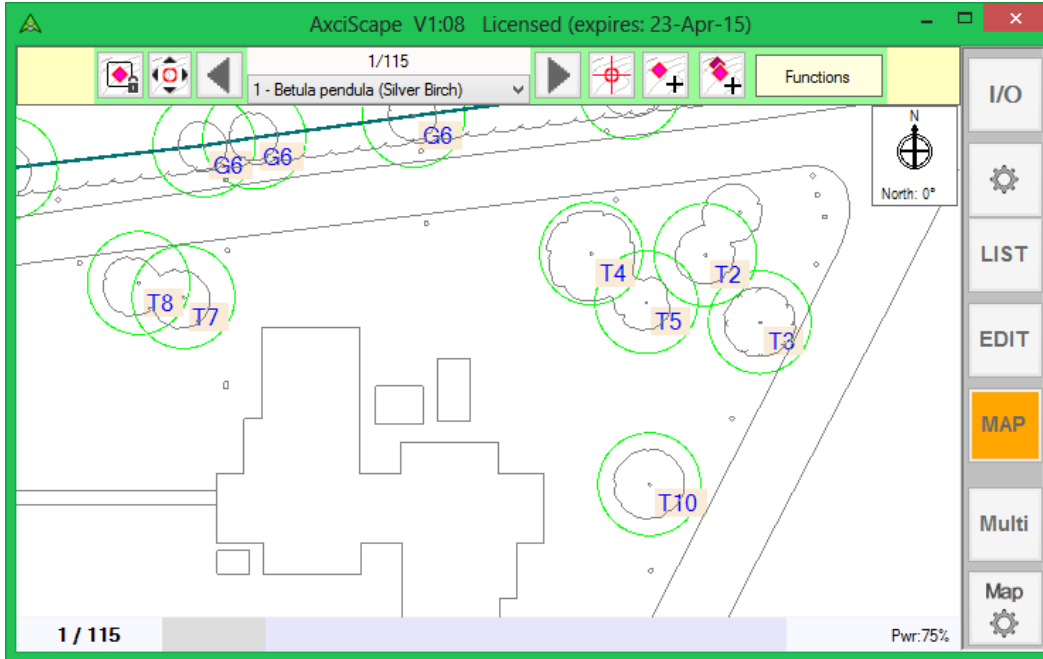
The line is shown complete. This could be used in tree surveys to represent a group boundary. Note how the donut and text is no longer visible. This is because the donut and text entity target setting was not set for a multiple line designation. If it were this would show the donuts etc.



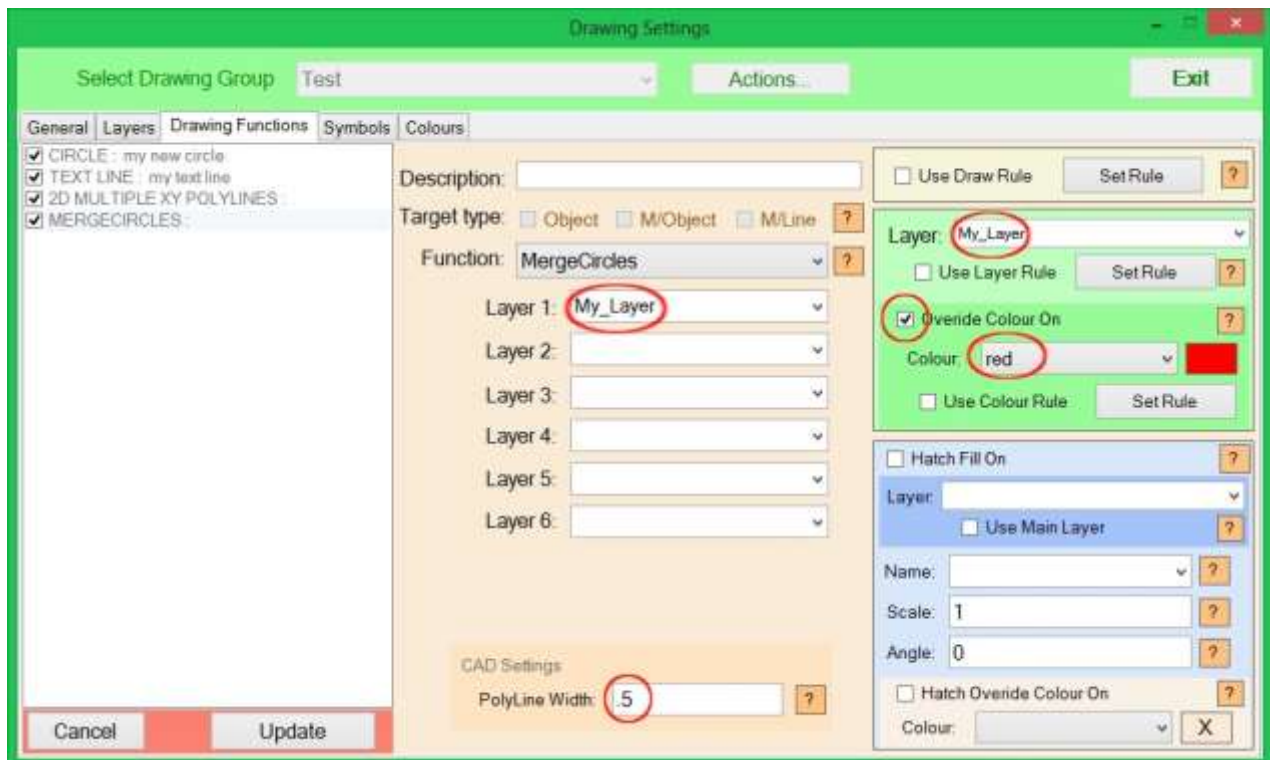


**MergeCircles:** This is what I term as a Global function as it doesn't apply to individual XY positions in a direct fashion. Its function is to draw a closed polyline around overlapping circles to create a merged effect.

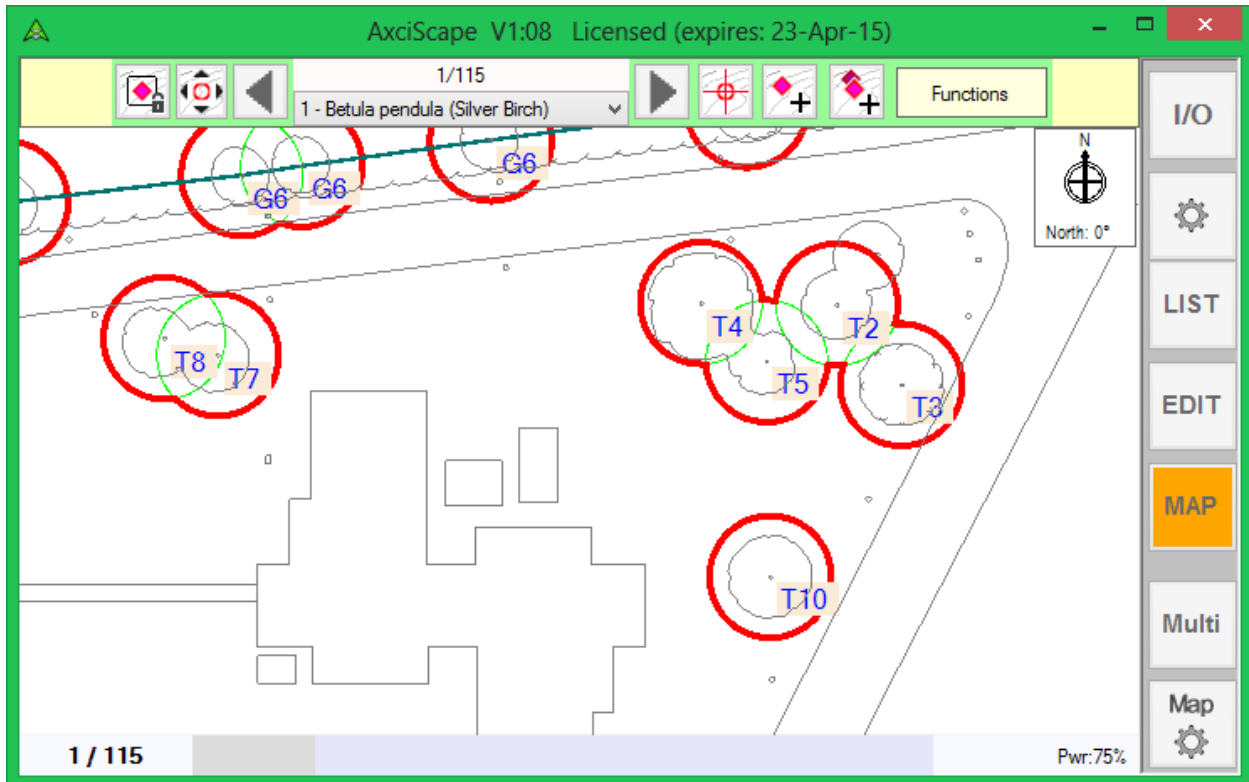
To illustrate this I have changed our Donut entity into a circle and given it a diameter of 9m. I have zoomed into the map to show a number of individual trees (see below).



I have added a 'MergeCircles' function and set its data to draw a red polyline 0.5m thick. The function works by looking for any circle contained within one of the six designated layers. I have selected the layer which the green circles are assigned to.

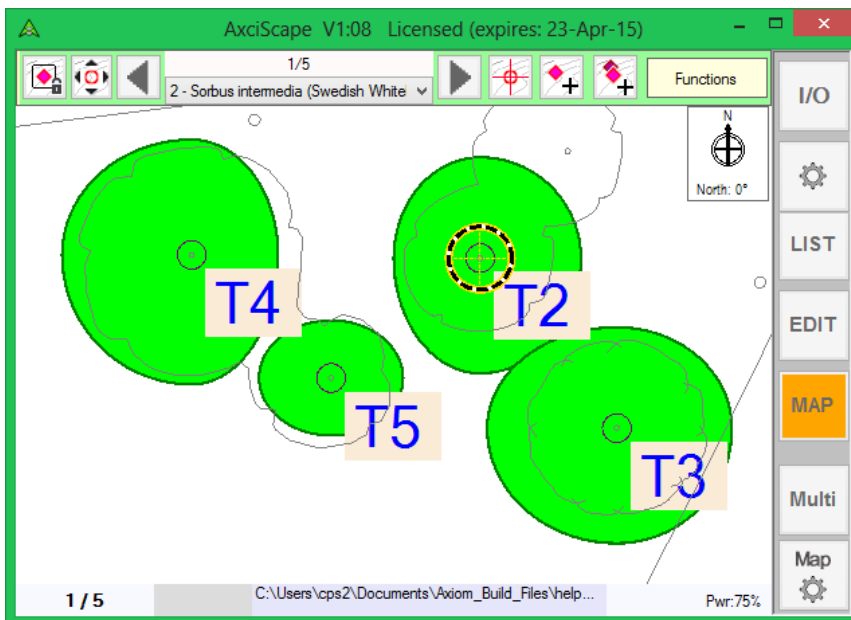
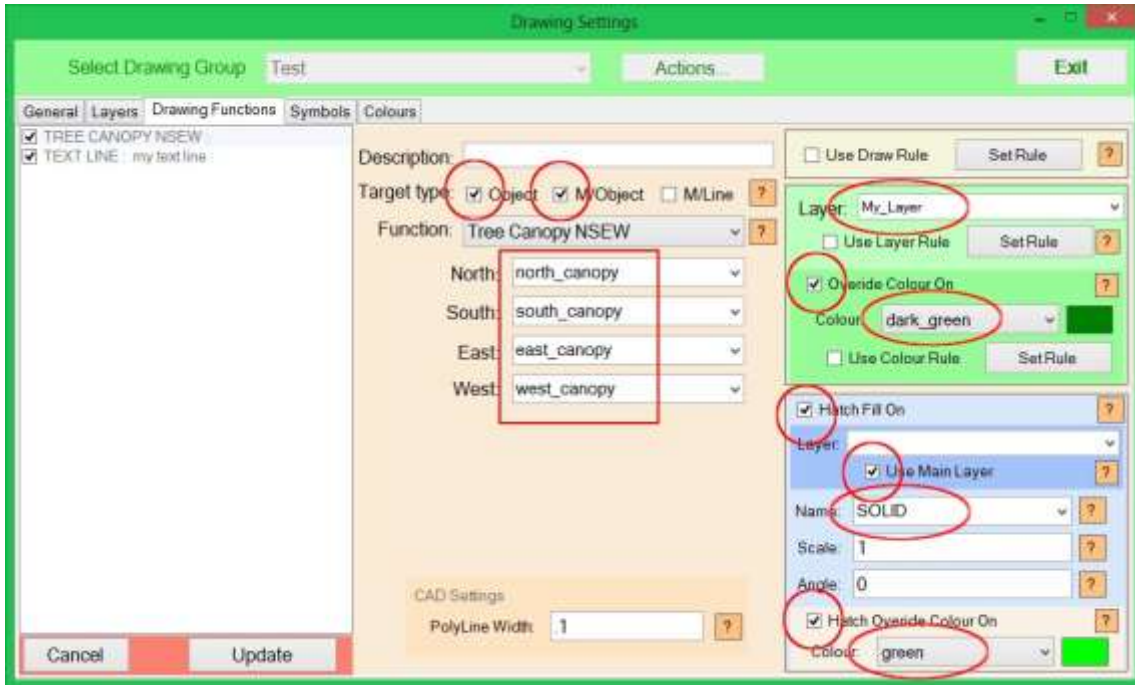


The resulting display showing the polyline drawn around the overlapping circles. Circles which have no overlap are also drawn around.



**Tree Canopy NSEW:** This function draws a flowing polyline consisting of number of vertices using four distances measured from the X/Y center position. The four distances can be manually stated as values or linked directly to fields. The function requires corresponding values to correspond to a clock face where north would be 12 o'clock, south is 6 o'clock, east is 3 o'clock and west is 9.

In the image below I have assigned the dimensions to the canopy fields. I have also selected the layer, and chosen to draw the canopy line as dark green with a width of 100mm. I have also set it to fill the canopy with a lighter green shade.



This image shows the resulting map display.

Note how I had moved the canopy function above the tag in the draw list so that the hatch won't cover the tag text.

The remaining function 3D Trees is covered in another help sheet.