



Civil 3D – Dynamic Manual Roundabouts

Creating Dynamic Roundabouts with Connected Alignments

In a previous paper I detailed how to create a Manual Junction using the Civil 2018 feature 'Connected Alignments'. [Manual Junctions Civil 2018](#)

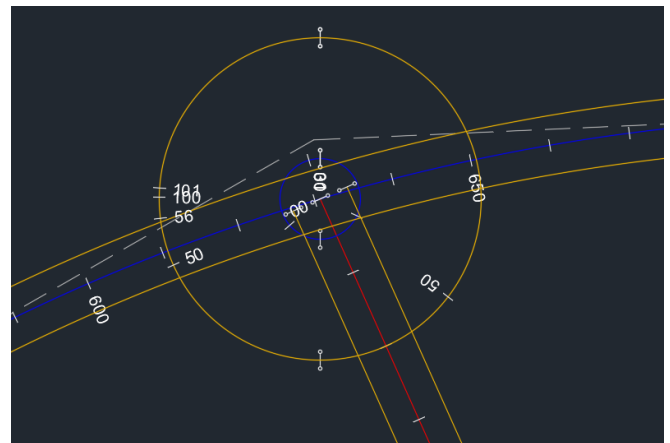
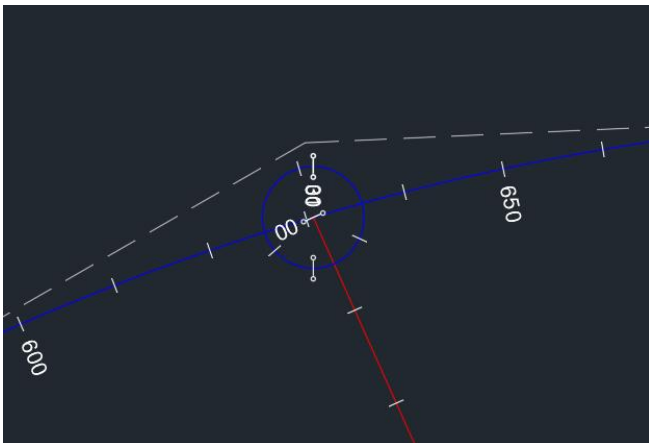
Maximising the potential of this tool I have been developing my own method for creating a 'Dynamic' (Magic) Manual Roundabout.



In principle, the technique treats the Roundabout as if it is a Crossroad or Junction with multiple intersections. I will run through the process of creating the Connected Alignments for the Roundabout Arms, the Vertical Profile can then be designed manually as well or by using the Offset Profile tool, previously analysed. [Offset Profiles](#)

We start by creating the Horizontal Alignments for the Main through road, any Side roads (Arms) and the Inner Roundabout.

Then create their Offset Alignments.



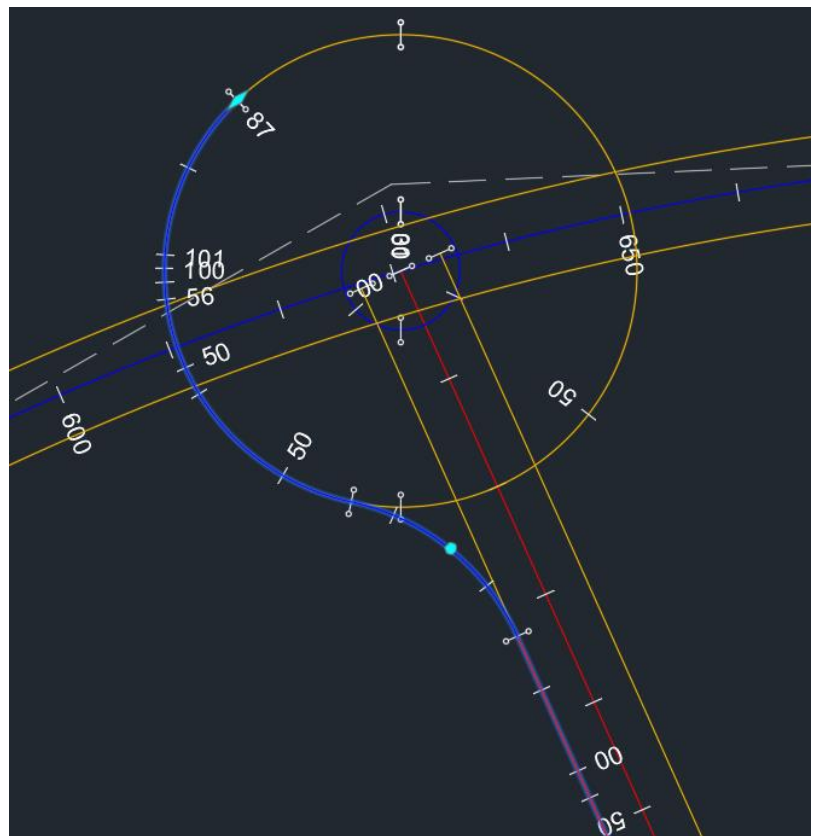
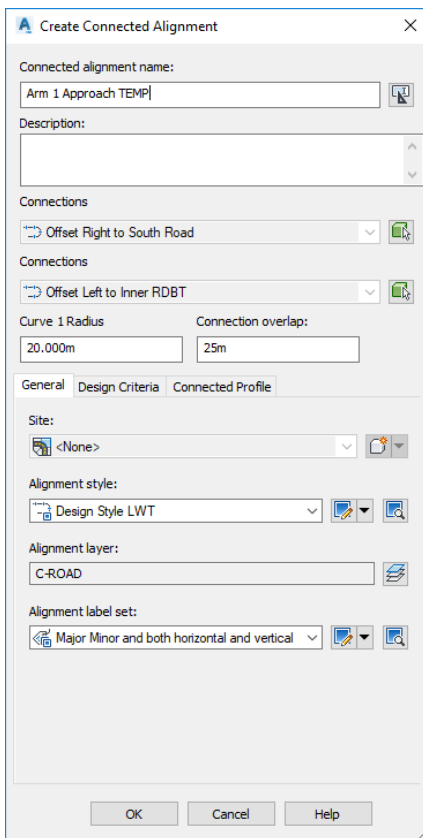
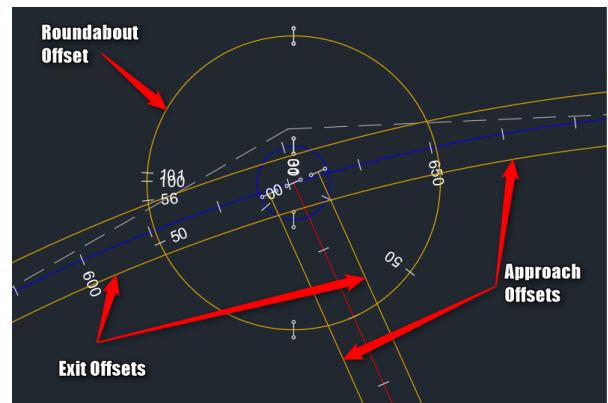
When we create our Connected Alignments, it is key that we follow the direction of traffic, as with the Manual Junction method, this will reduce the number of Assemblies required when we create the Corridor.

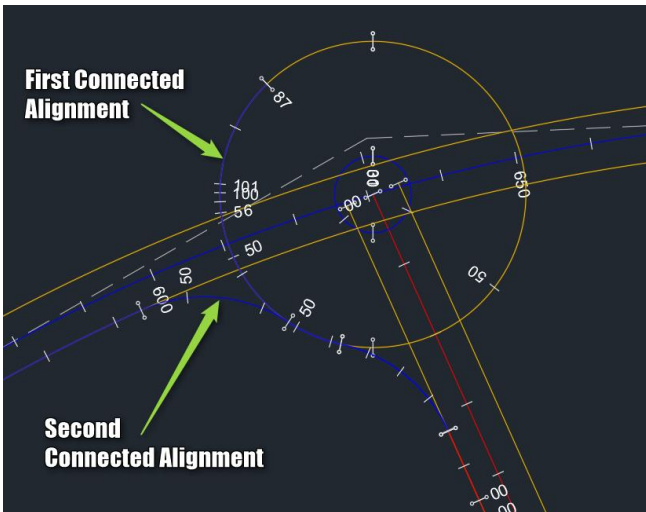
Connecting each arm of the roundabout will require 2 Connected Alignments, Connecting the Approach Arm to the Roundabout Offset Alignment then connecting this new alignment to the Exit Arm.





- With the Connected Alignment Tool select the Approach Offset Alignment then the Roundabout Offset
- Select the position of the connected Radius
- Define the Curve Radius and Connection Overlap.
- The new Alignment must cross the Exit Offset. I advise extending the alignment once created for full manoeuvrability of the Roundabout once complete.

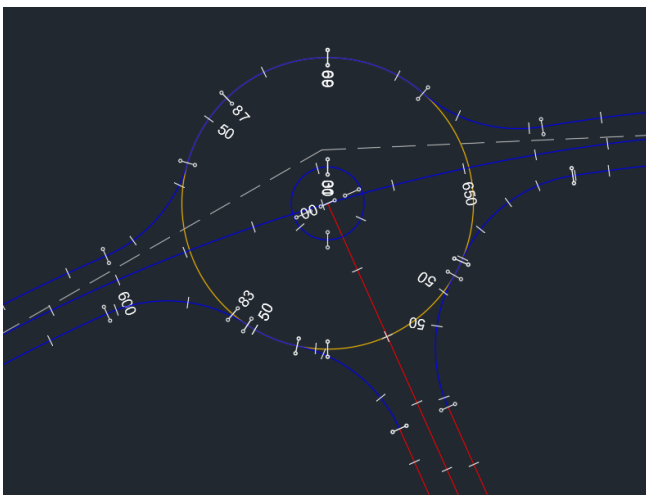




Use the Connected Alignment Tool, Select the New Alignment and the Exit Offset. Repeat the Connection definitions as above.

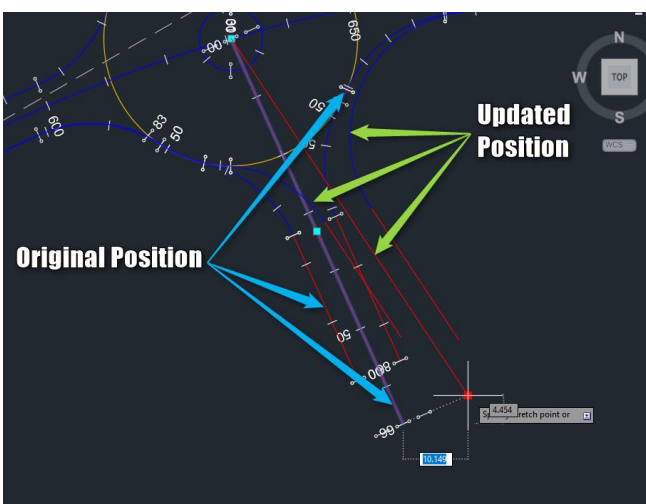
Once we have our Second Connected Alignment you may think that the First Connected Alignment is no longer needed and can be deleted.

We could delete this Alignment but this would make our final Roundabout Static.



Instead we set the Display Style of the First Connected Alignment to _No Display. We can also do this for the Offset Alignments.

Repeat as necessary for each Arm to create your Dynamic Roundabout.



With each Arm Connected our Roundabout is now Fully Dynamic.

We can adjust any of the roundabout Arm and the Roundabout will update the Vertical Profiles for each Connected Alignment and the Roundabout Corridor.