A survey company want to create a profile of the Natural Surface underneath a transmission line. The transmission line has been located and plotted (Purple line). Points have been recorded off to the side of the transmission line to ensure a greater accuracy in Z values. The company would like to have the recorded NS points shifted directly underneath the CL of the transmission line (change in XY) but to keep the elevation the same (keep Z values). Output is to be a profile and a list of the newly created NS points underneath the transmission line (PXYZD – in sequential order).

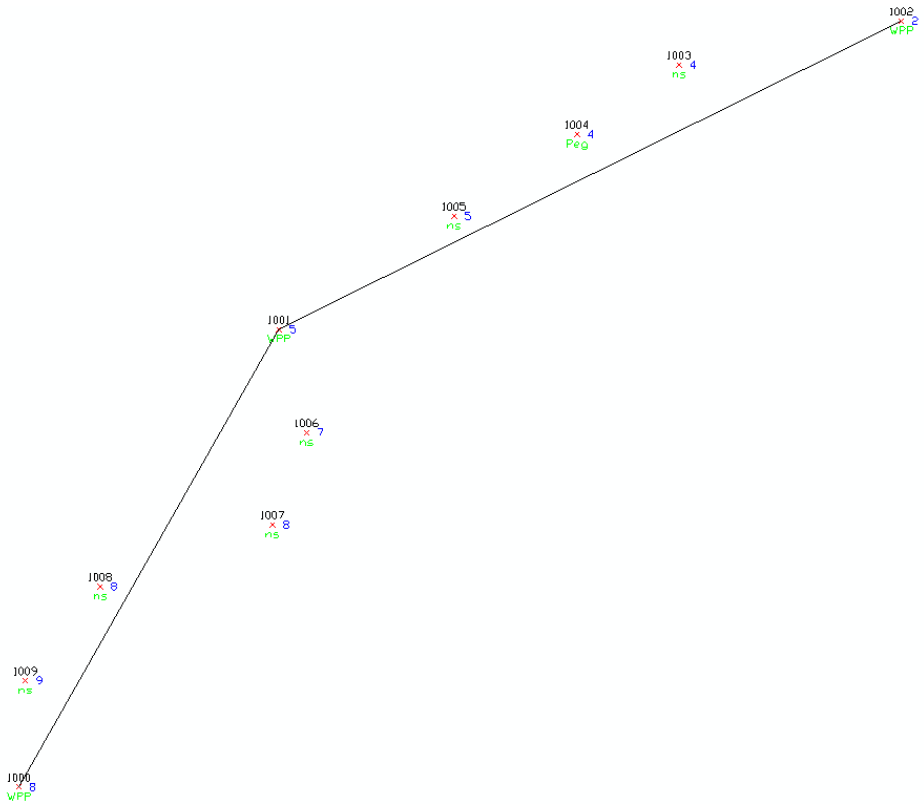
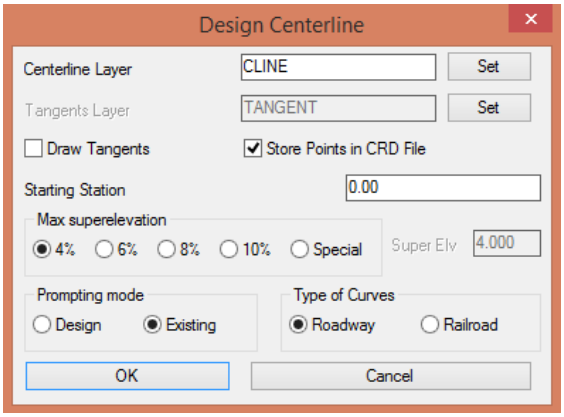


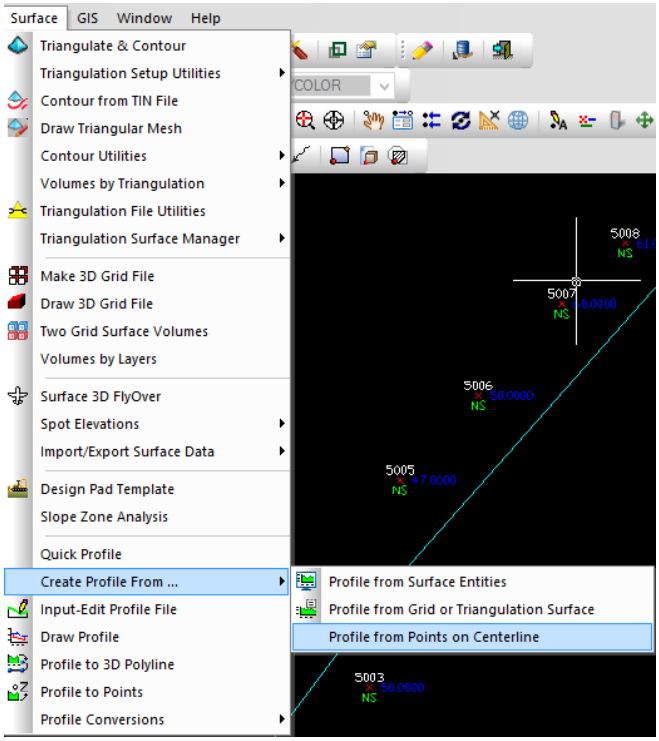
Figure 1: Transmission line (purple) and NS points recorded off to the side – note points on both sides: due to terrain or obstacles.

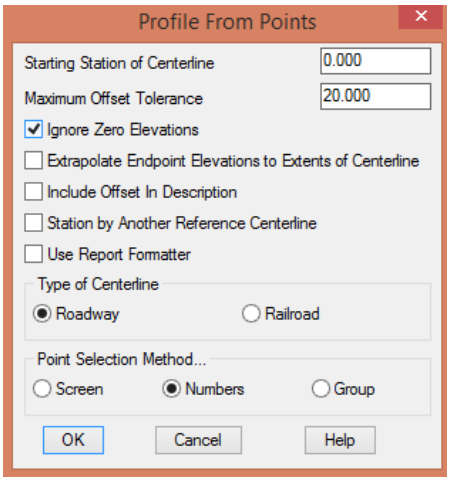
1. Create the centerline:
    a. If you don't have any points joined via a 3D Polyline: **Centerline -> Design Centerline.** Create a unique name for the CL. The following dialog then appears:



    b. Choose the points that you want to use for the centreline.
    c. If you <u>have</u> an existing 3D Polyline joining your desired points for the centreline, choose **Centerline > Polyline to Centerline File** and follow the prompts.

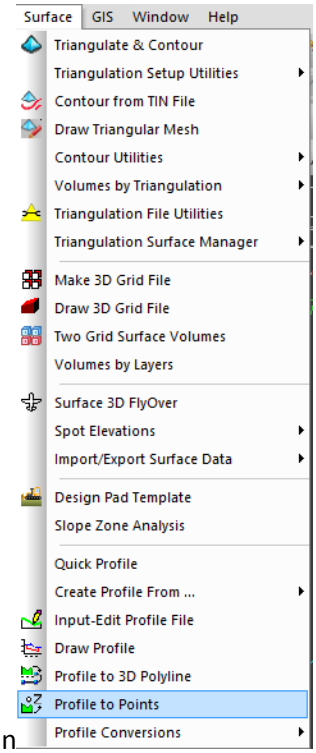
2. After the centerline has been defined and saved, create a profile: **Surface -> Create Profile From -> Profile from Points on Centerline**





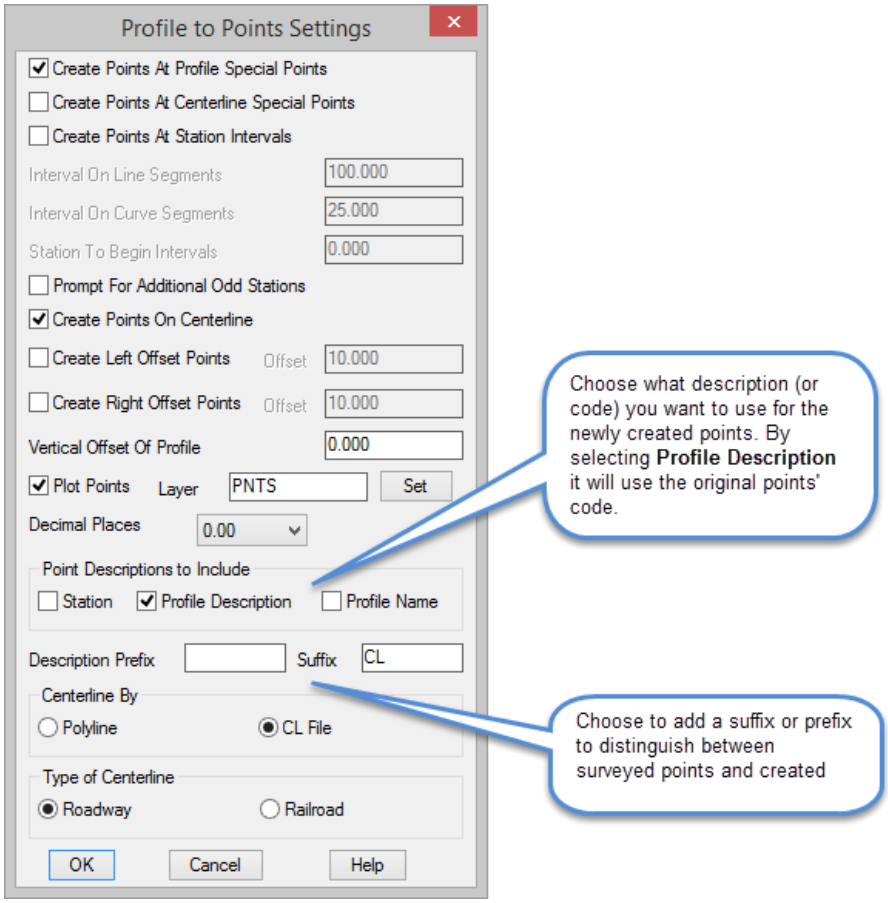
In the above dialog box, ensure that the **Maximum Offset Tolerance** is set to the correct value: this is particular important if using Point Groups – the user could select the Point Group 'NS' but this could cover more of the site then necessary for this particular transmission line. By setting the Max Tolerance, only points within that range (left and right) will be selected. The user can also choose to select the points in 3 different ways: **Screen** = manually select the points with the mouse, **Numbers** = type in the numbers or **Group** = which will allow the user to select the Natural Surface points by utilising point groups.

3. **Surface -> Profile to Points**

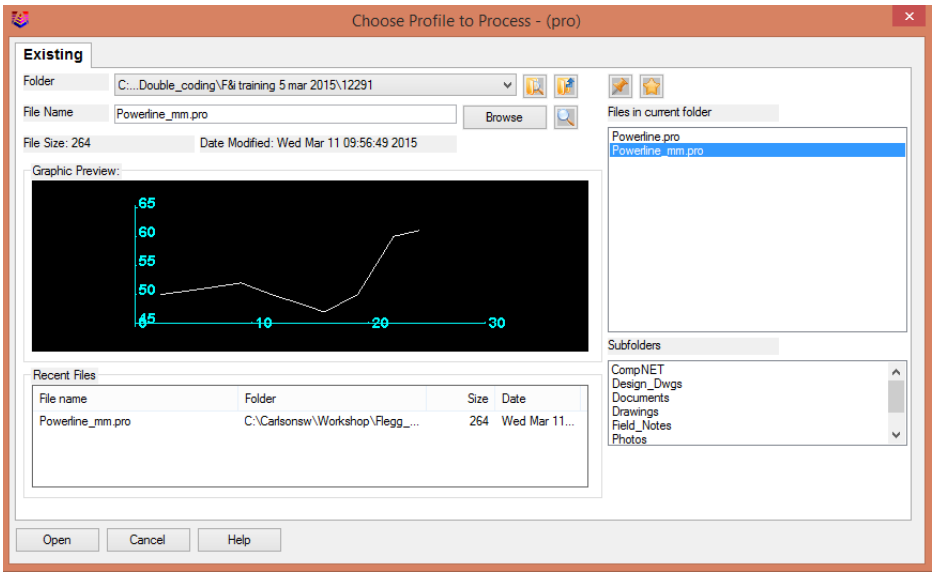


n

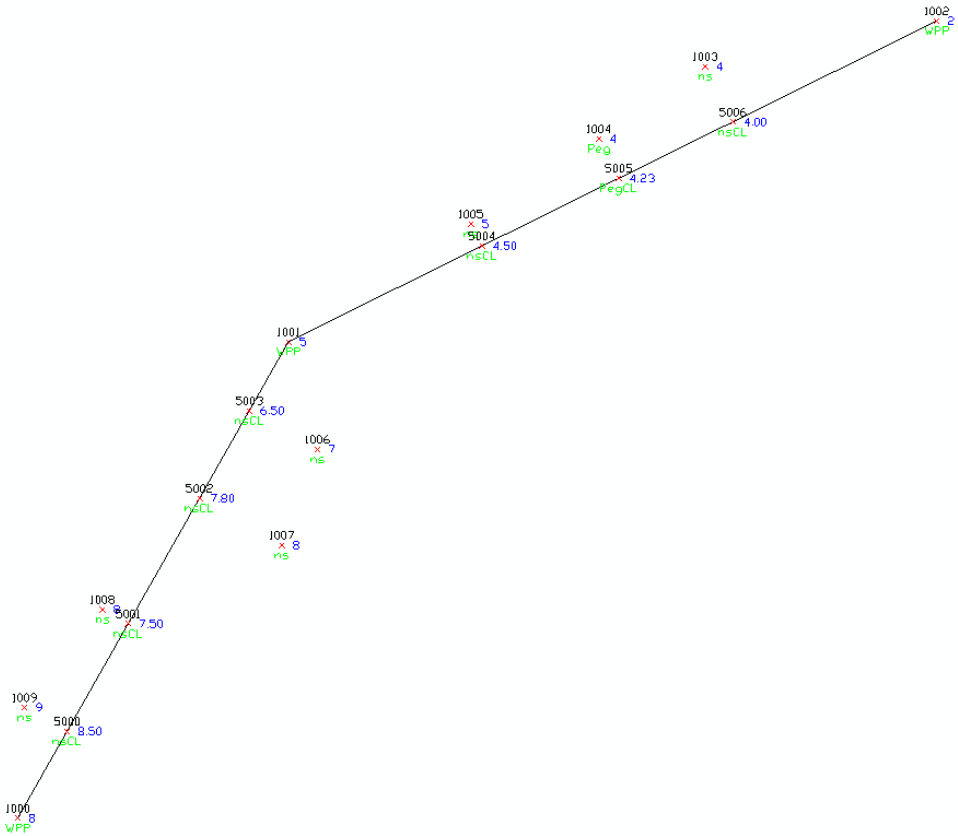
This option will define the points along the centerline.



Choose 'N' when prompted with 'Station by another reference centerline?'
Select the profile that was created in Step 2.



Enter a starting point number for the new points.



Points have been created.

4. To view the new points: **Points -> List Points.** Select the range of points.

5000	6462092.72	459623.62	8.50	nsCL
5001	6462120.26	459639.26	7.50	nsCL
5002	6462152.38	459657.49	7.80	nsCL
5003	6462174.81	459670.23	6.50	nsCL
5004	6462216.95	459729.73	4.50	nsCL
5005	6462234.26	459764.69	4.23	PegCL
5006	6462248.72	459793.90	4.00	nsCL