Engineering Drawing and Graphics
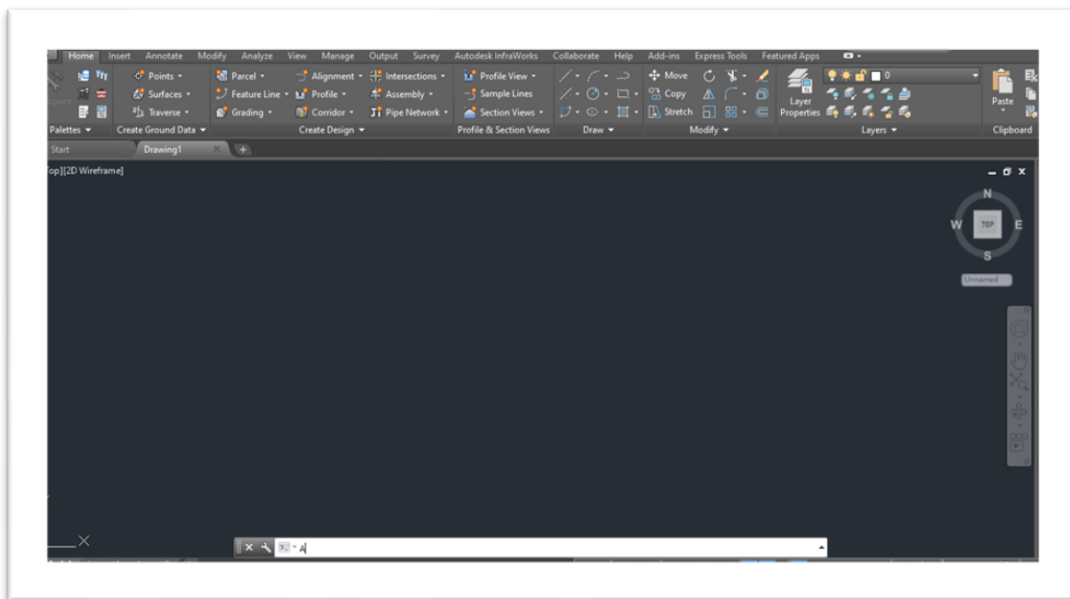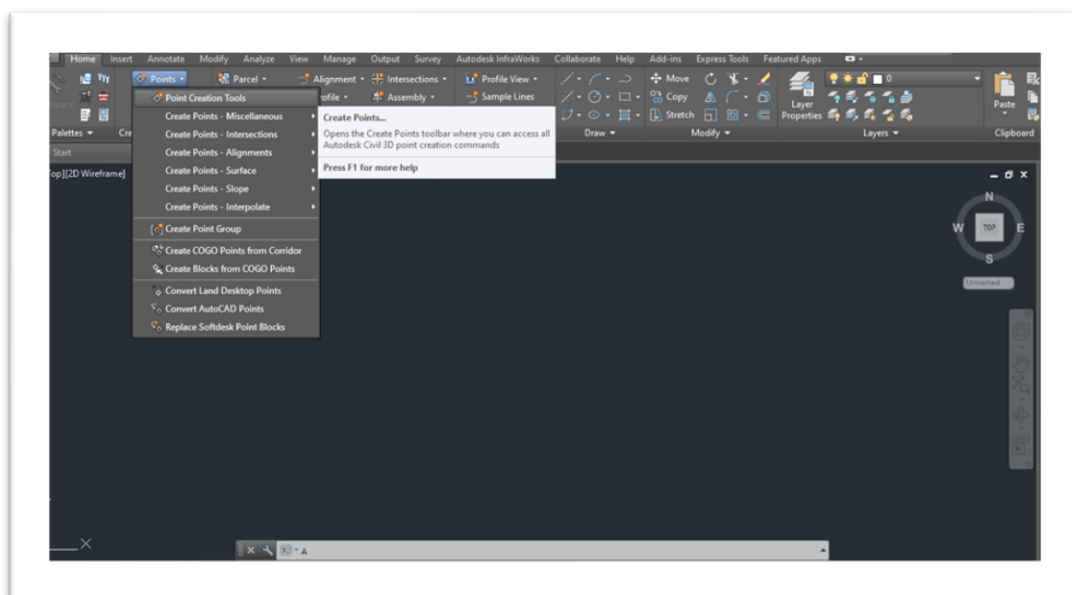
LAB # 6:   Civil 3D

1. Points:

   In Civil 3D, points are the key elements used for surveying and levelling, as well as creating and analysing designs.

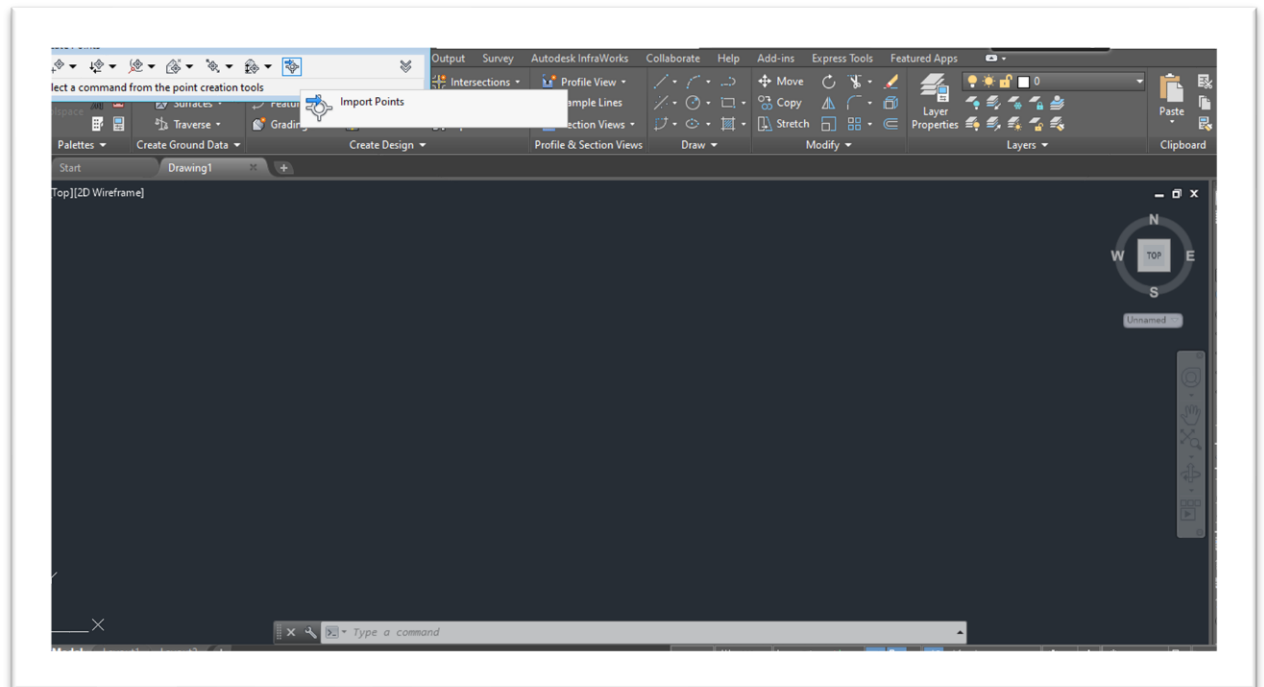   1.1.   Steps to Create Points:

   - Open civil 3D and create a new drawing
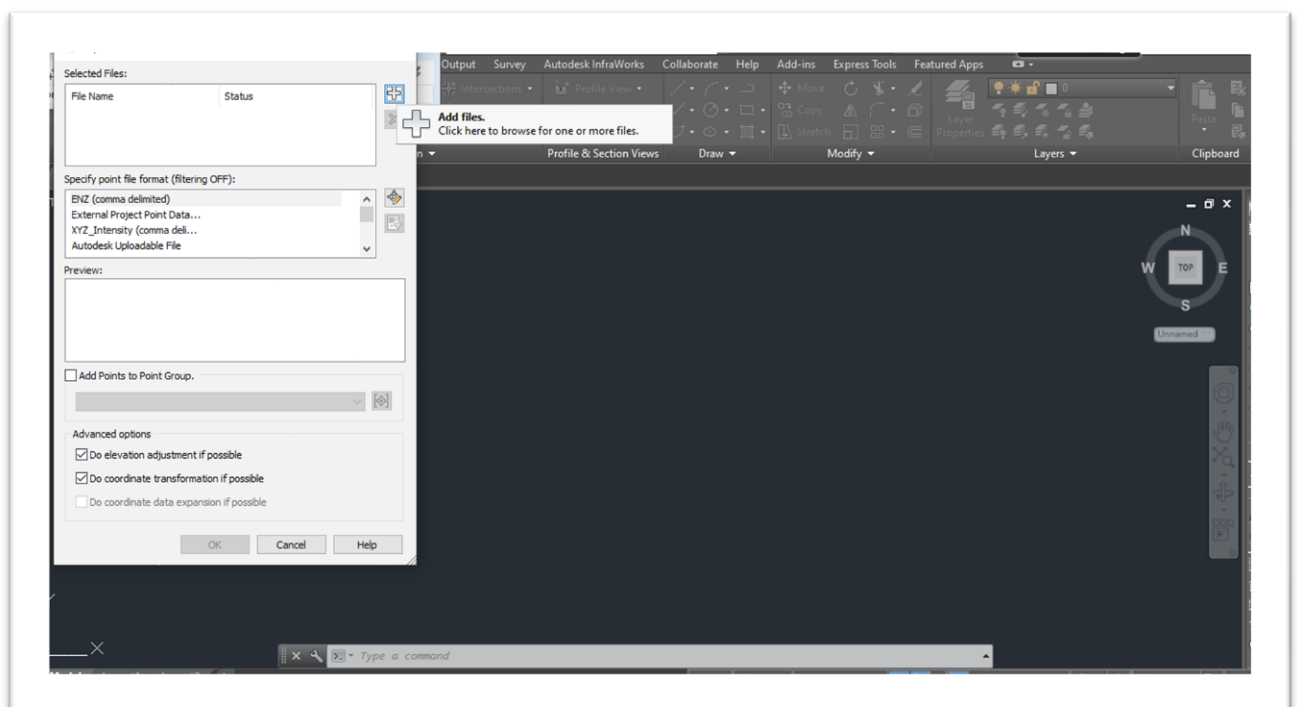

   - In the Home Tab of the ribbon, click on "Points" panel to access points creation commands.
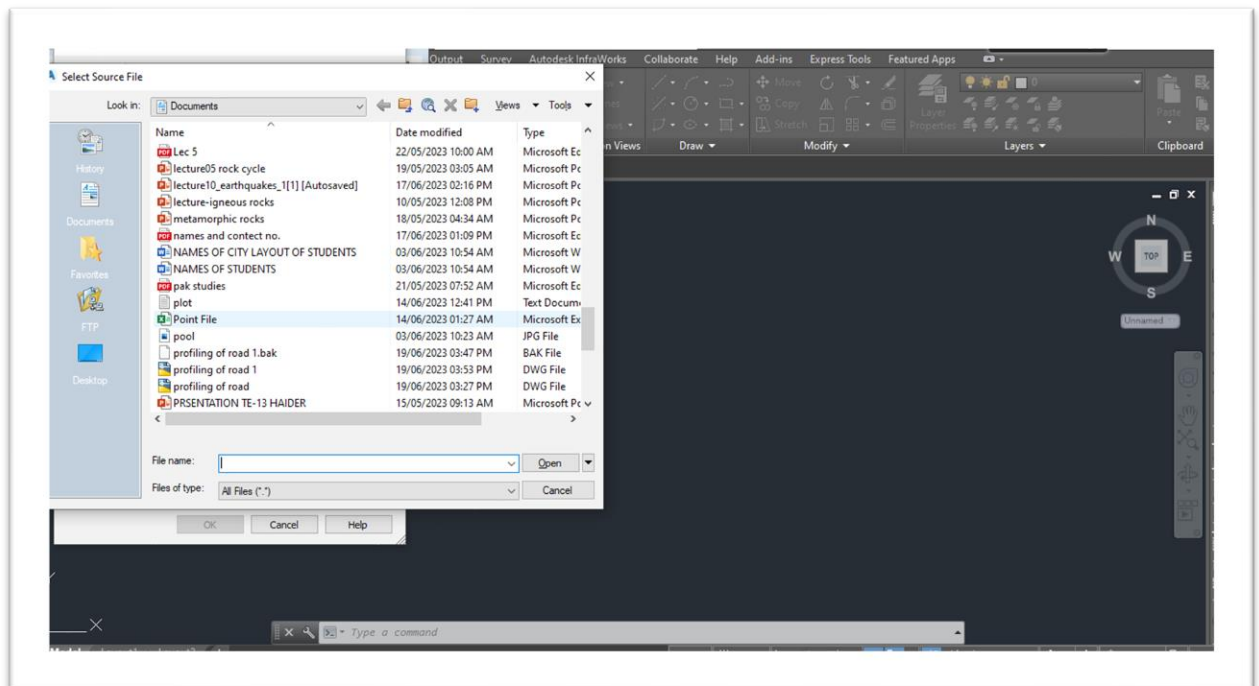
- After opening "points creation tools" click on icon of "import points" and click on it.
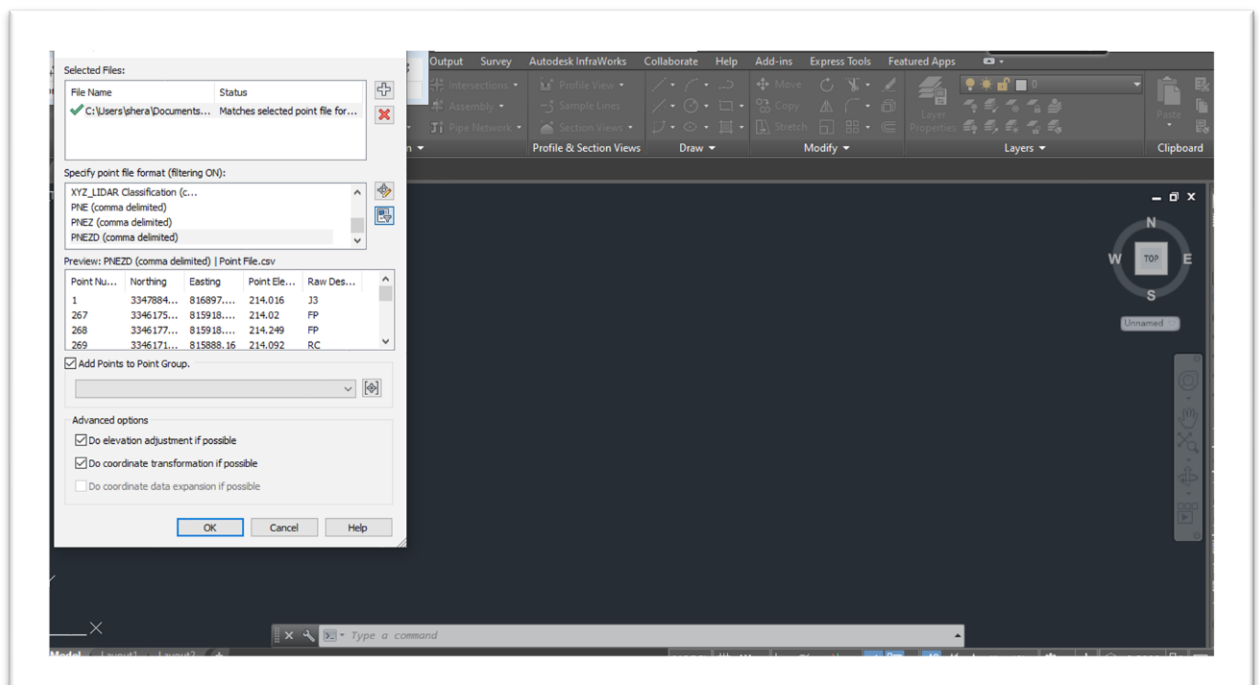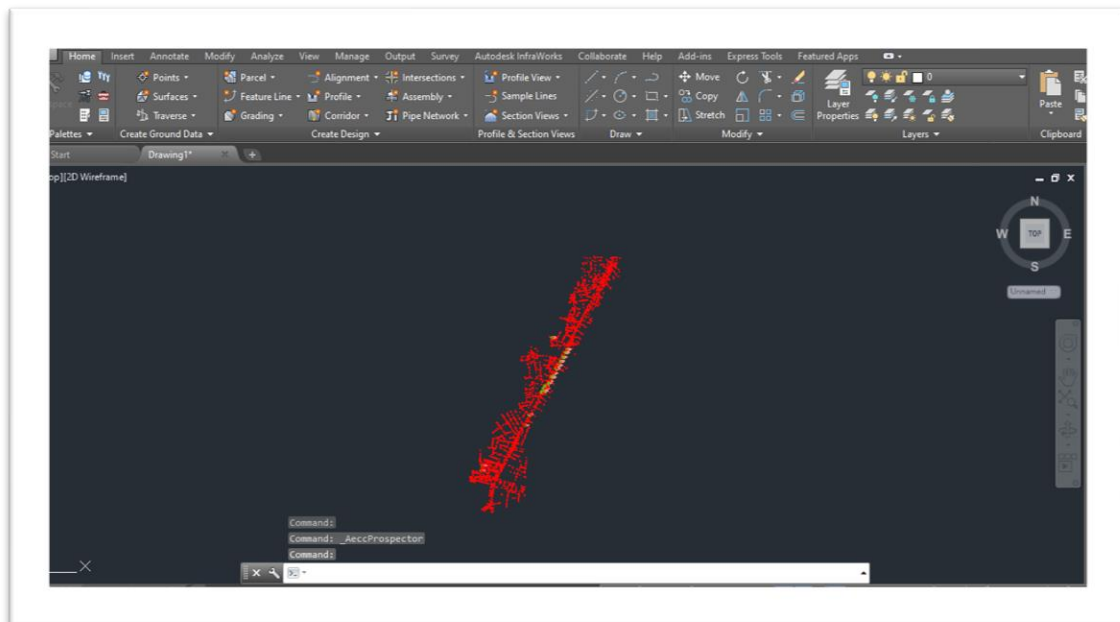

- A dialog box will open where you can add files.

- Add Files by clicking ⊞ and select excel file, "Point file"

- After you have created the points you can use point group command to organize them into groups.

2. Now display the Point groups by using Zoom Command and Extend Command
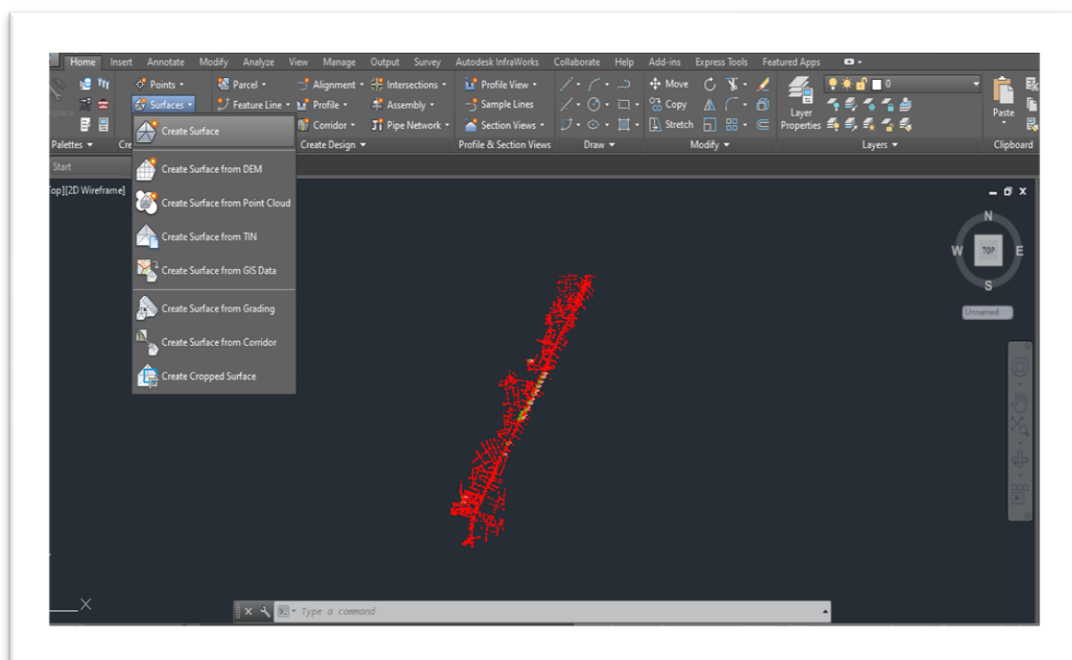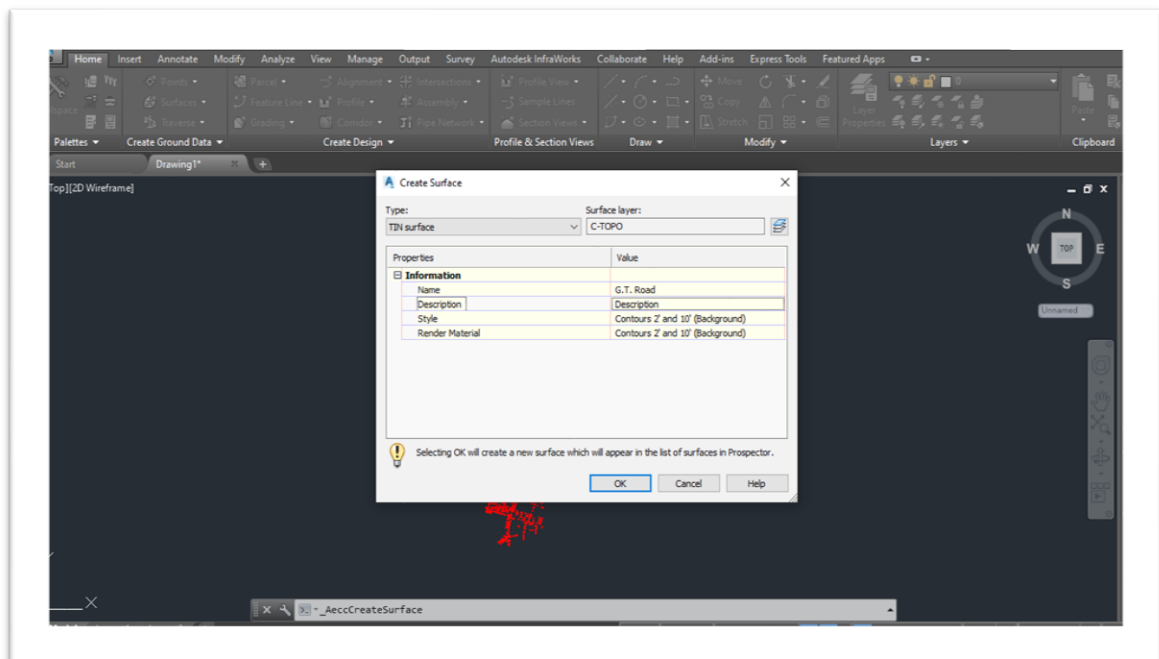

Surfaces:

In civil 3D, surfaces refer to a 3D representation of a topography or contours of a piece of land or another feature.

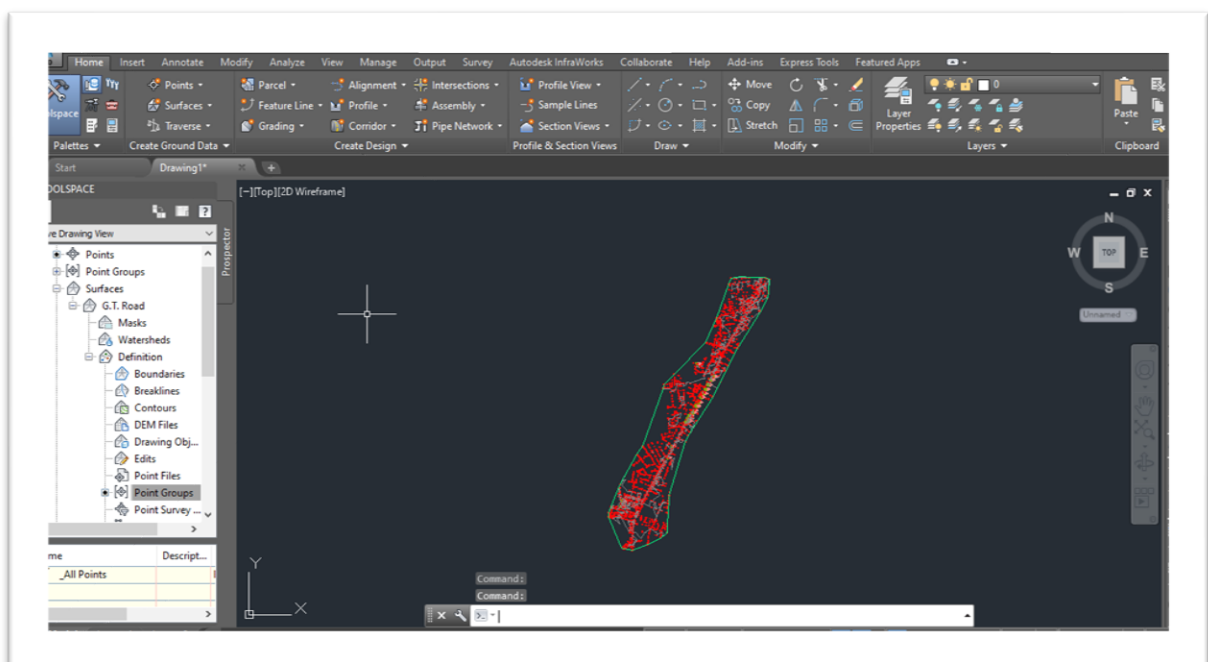### 2.1.   Steps to create surface:

- In the Home tab of the ribbon click "Surfaces" panel to access to surface creation tools.

- A dialog box will open , write name of the surface such as '**G.T.Road'** and click **ok.**

- Now click prospectus and go to surface>>G.T.Road>>Definition>>Point Groups then apply the surface.
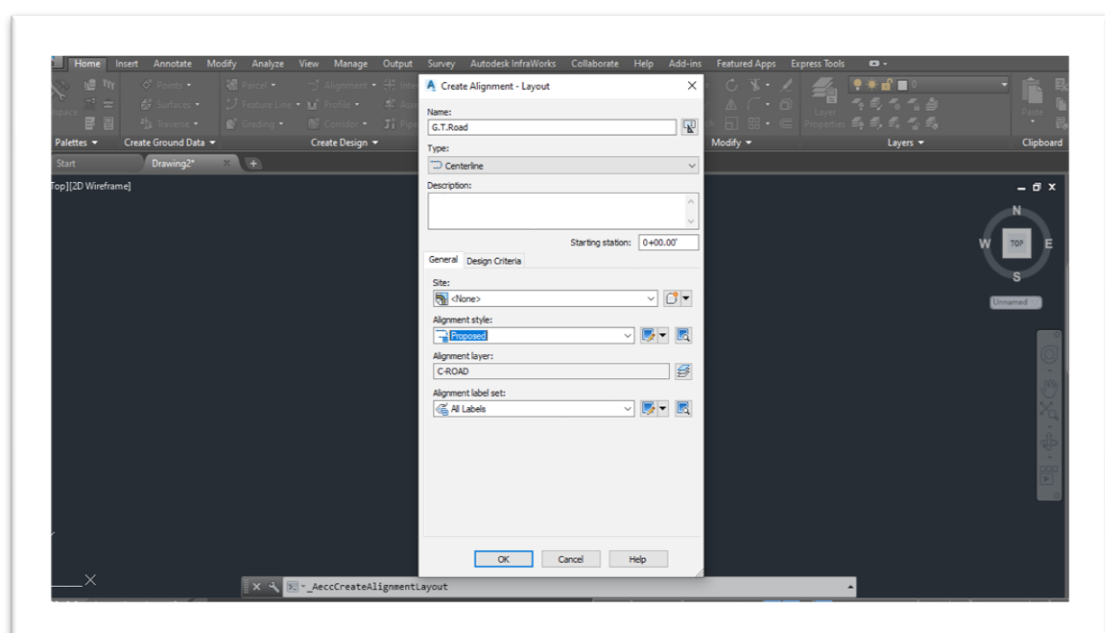
3. Alignment:

In Civil 3D, an alignment is a 3D representation of a proposed linear design element such as roads, railways, or pipes. It is composed of lines, curves, and spirals that are viewed as one object. Alignments are useful for creating other design items such as profiles, corridors, or earthworks.

3.1.   Steps to create Alignment:
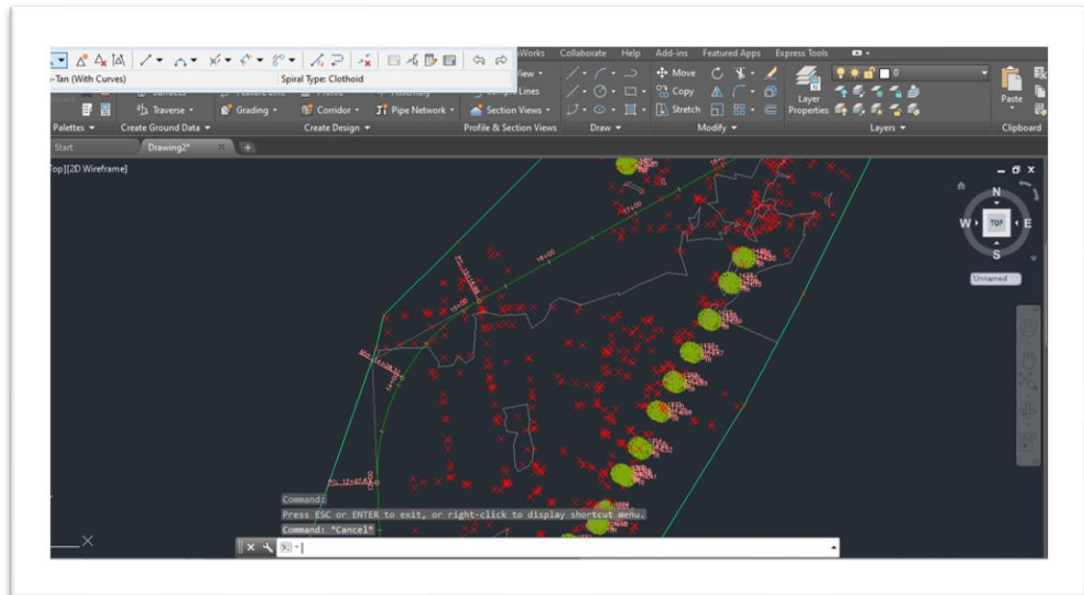
- In the Home Tab click "Alignment" panel to access to "alignment creation tools" and click it to open the Dialog box
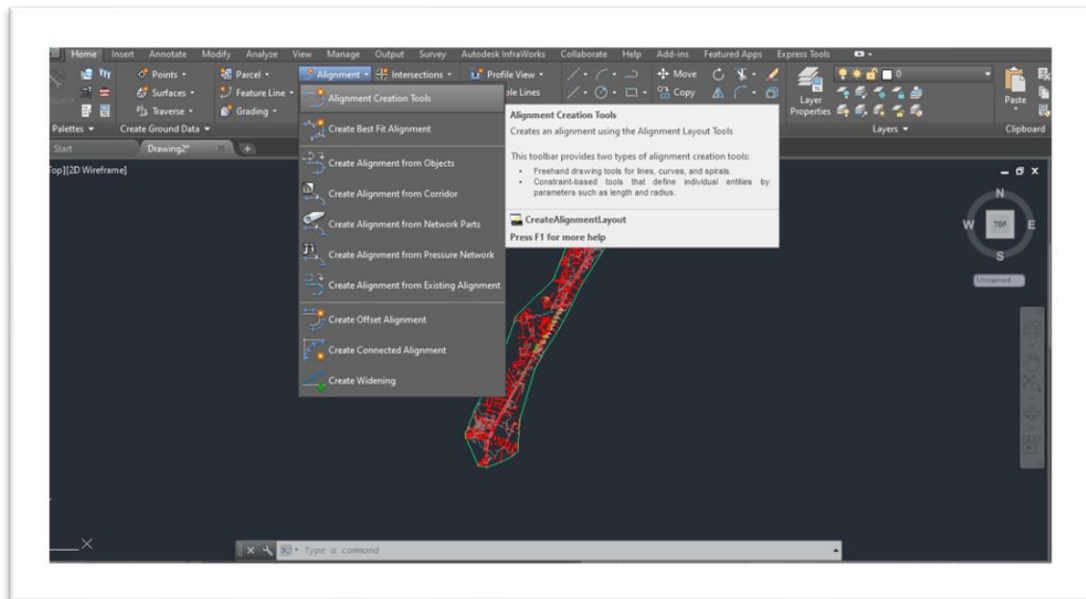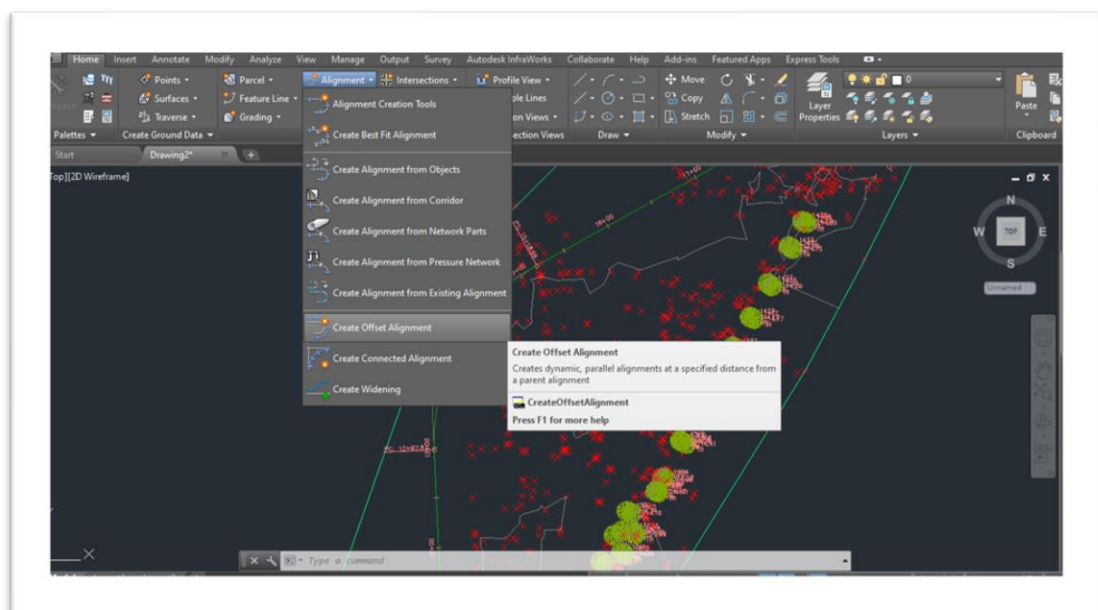

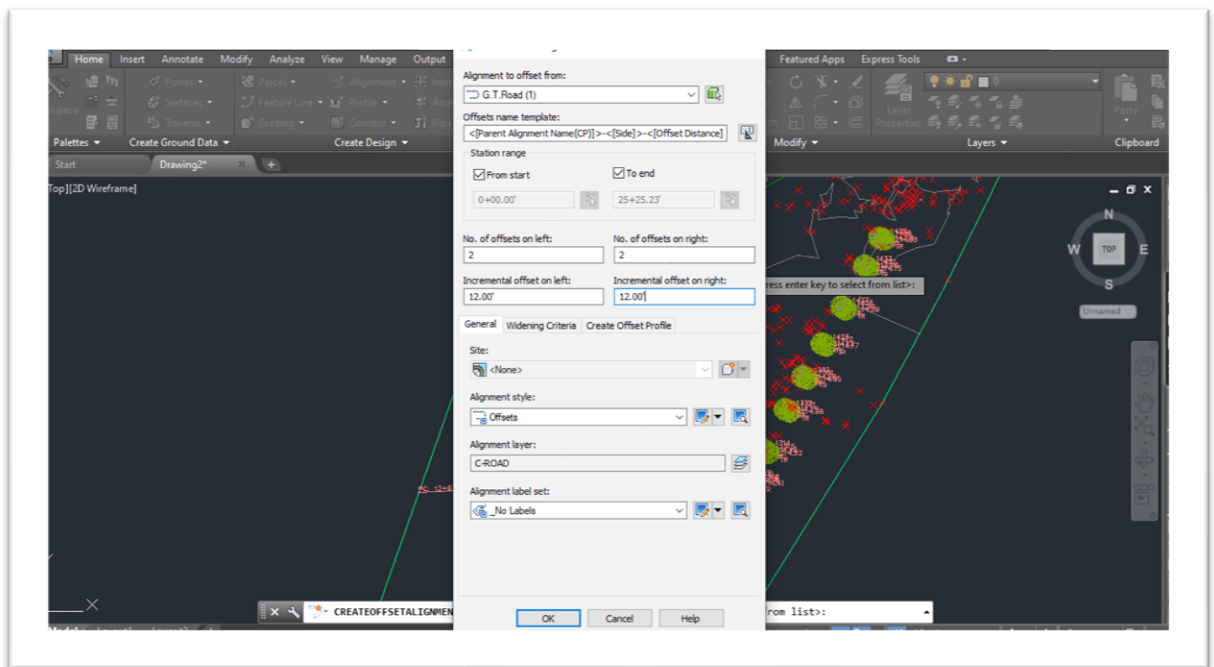- In the "create Alignment" dialog box specify the name of Alignment and type of Alignment (e.g. Centerline etc)

- In the "Alignment creation tools" go to $\mathbb{A}$ and click Tangent-Tangent Curve to draw Alignment.
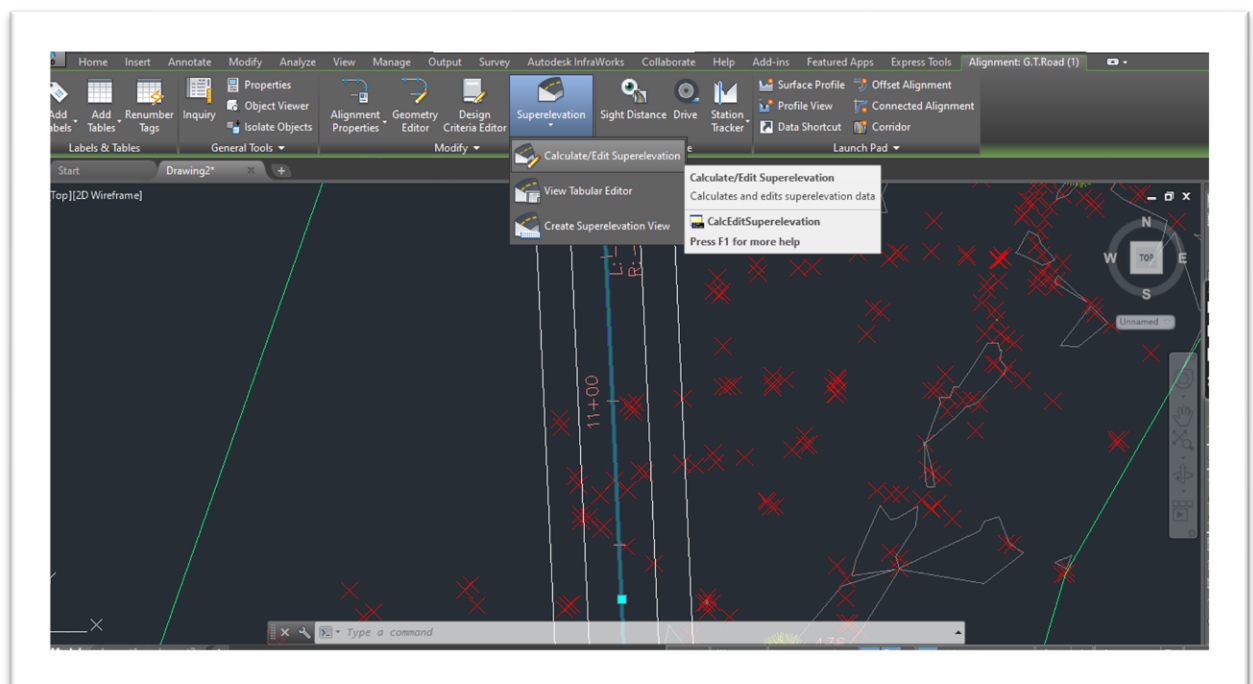

- Now again go back to "Alignment">Create offset> Offset dialog box will appear

- Now change the number of offsets and then set alignment labels and click OK

- After that double click the centerline>> superelevation>> calculate superelevation>>finish
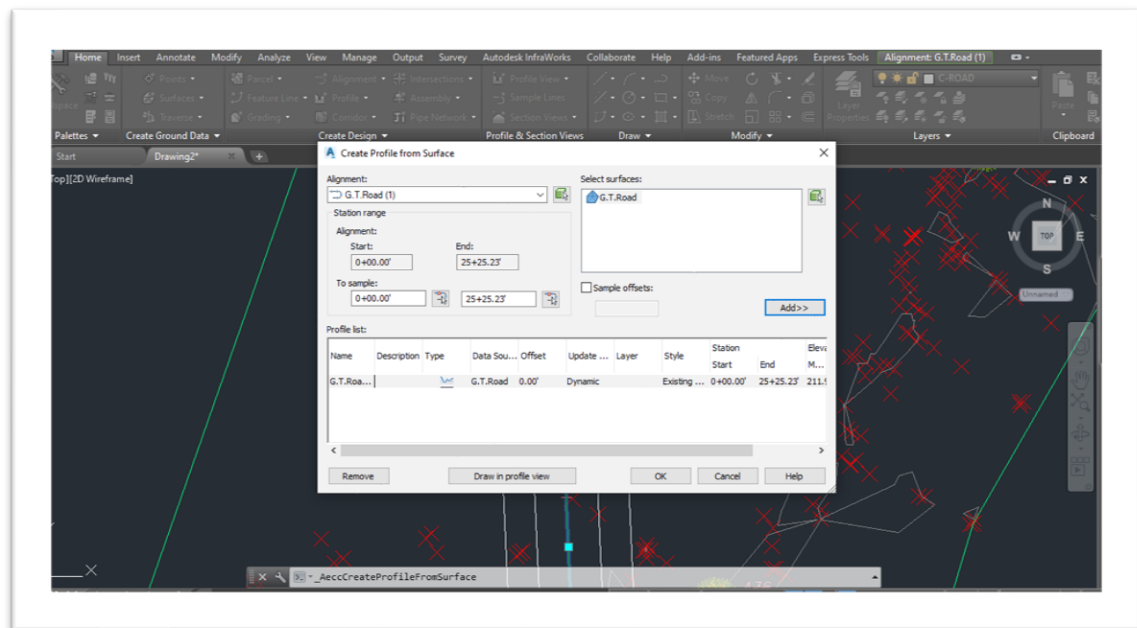
4. Profiling:

In Civil 3D , A profile is a 3D representation of a vertical alignment of a linear feature such as road,railway or pipe.It shows the elevation and slope of the feature along its length and typically created from the alignment.
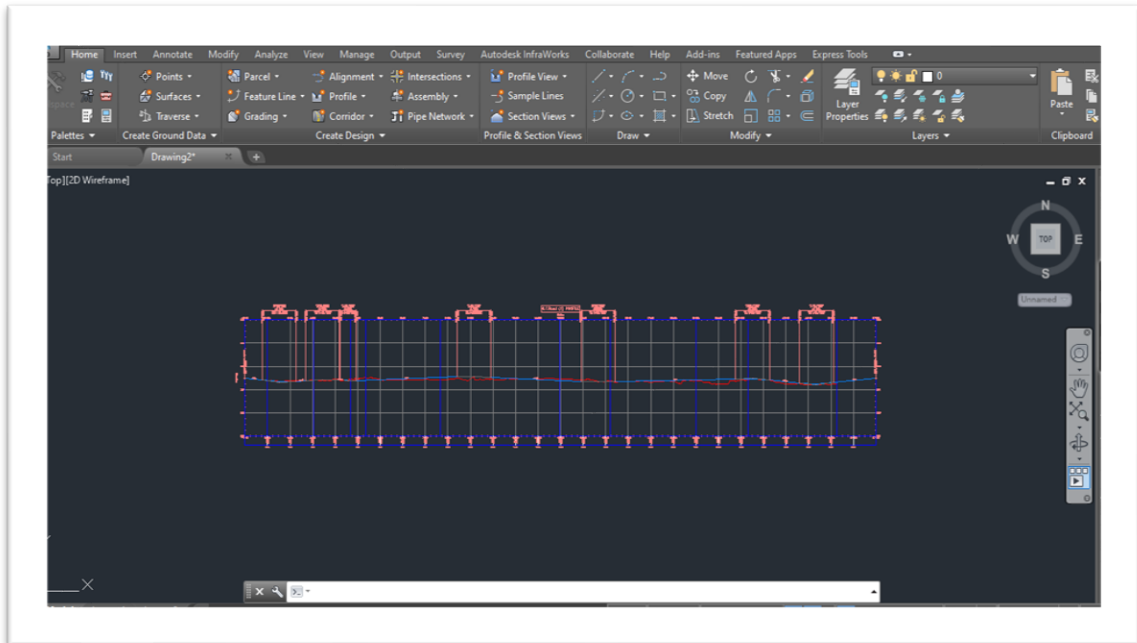
4.1. Steps to create surface profile:

- In the home tab of the ribbon goto profile>>profile surface>>surface>> add>> data profile view

- After going to "Data profile view" click next and create profile. Profile will be created
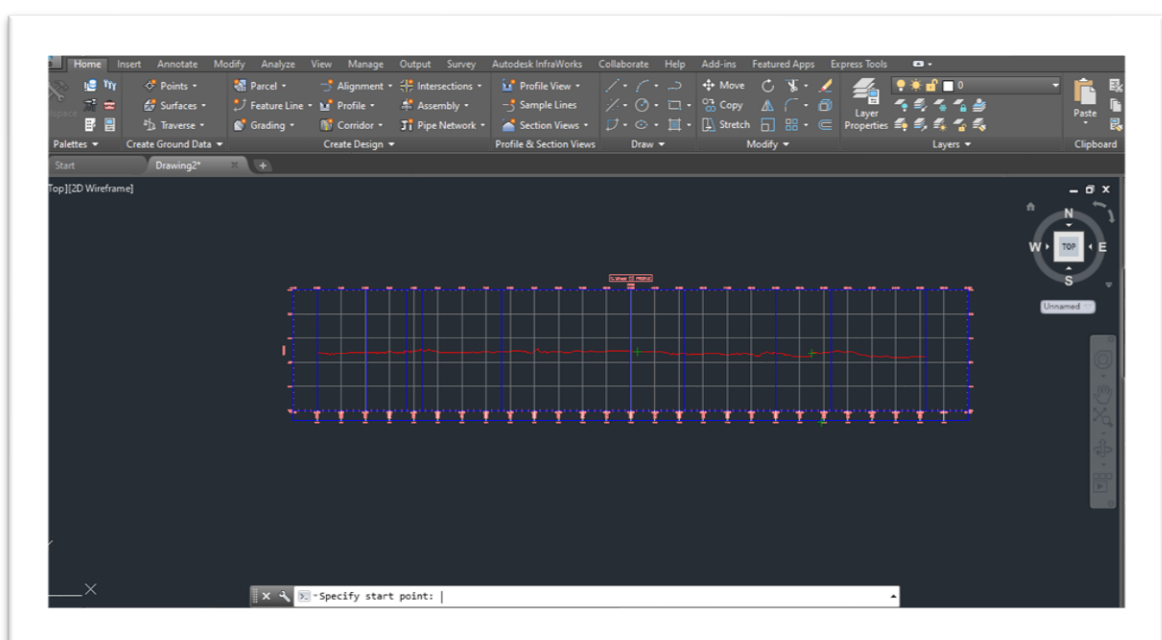
- now go to "profile creation tools">>write labels>>ok>> and after it click tangent-tangent(with curves) and draw it.


5. Assembly:

Assemblies are used in civil engineering and land development projects to design the cross-sectional components of linear features and to generate construction plans.Civil 3D provides powerful tools for creating,analyzing and modifying assemblies.

5.1. Steps to create assembly:

- In the Home Tab click "Assembly" panel to access to "assembly creation" and click it to open the Dialog box.
- After dialog box appears specify the name and click ok.
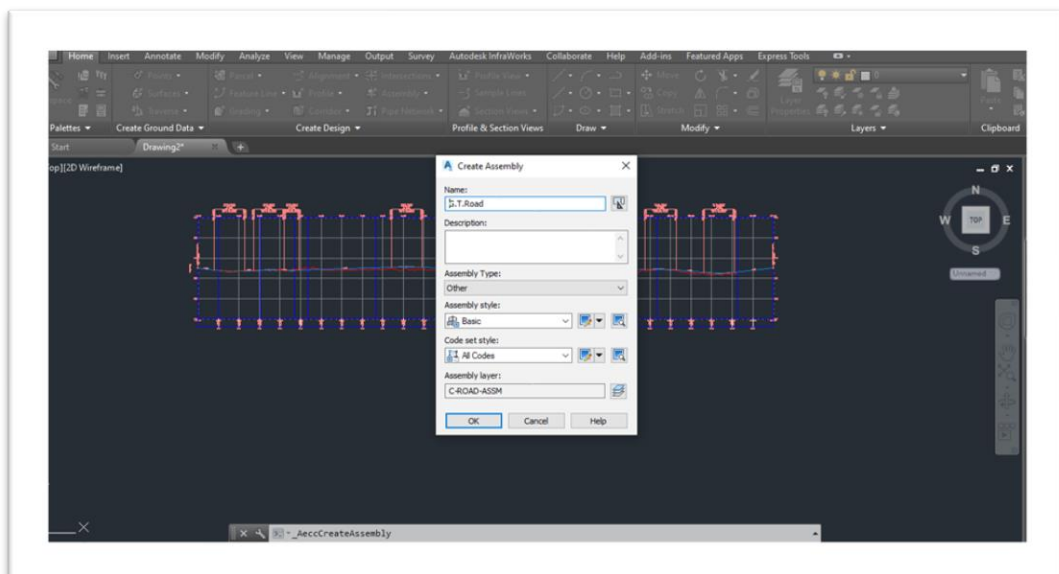
- Now draw medians, shoulders, lanes and daylight from tool palettes