SurvCE – Manually Entering an Alignment

Overview
Bringing alignment information into the data collector provides an opportunity to reference collected information by station and offset as well as layout plan elements.

This procedure takes you through the steps to manually enter an alignment into a data collector running SurvCE software and edit an existing centerline.

Creating a Centerline
1. Create an alignment report from the design application to get the starting station, key coordinates, and geometry data to enter and check the results.
2. Print the report for reference in the field.
   Keeping this report handy in the field will allow verification of your orientation.
1. Create or select a data collector job.
2. Click on the Road tab.
3. Click on 1 Input/Edit Centerline.
   The last centerline entered (if available) will be displayed.
4. To enter a new centerline, click Clear.
   This will zero all the entries in the Input/Edit Centerline box.
5. To load an existing alignment, click on Load.
6. Reference the alignment report.
   
   If you have previously entered the beginning point into the data collector, enter it in the Start Pt ID field, otherwise enter the coordinates in the Nor: and Eas: fields.

7. Enter the starting station.
8. Click the **Add** button to add definition.

9. Select the first alignment element type.

![Input-Edit Centerline](image)

**Adding a tangent (Line) element**

1. Select **Line**.

   Note and double-check the starting station and coordinates to make sure these numbers were entered correctly before continuing on.

2. Enter the tangent definition.

3. If you have a point defined where this portion of the line will end, click on the **List** icon or the **Map** icon and pick the point you want to use.

4. If no point exists, enter the **Length**.

5. Enter the bearing in the **North Azimuth field**.

   Enter the bearing using `N dd.mmss E` format, for example: `N 81.5838 W`

   SurvCE will automatically calculate the **North Azimuth** for you.
6. Enter the length and bearing.

<table>
<thead>
<tr>
<th>Line(Tangent) Element</th>
<th>Cancel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Pt ID:</td>
<td>Sta: 10+00.0000</td>
</tr>
<tr>
<td>Nor: 636041.4714</td>
<td>Eas: 952938.0181</td>
</tr>
<tr>
<td>End Pt ID:</td>
<td></td>
</tr>
<tr>
<td>End Station:</td>
<td>Northing:</td>
</tr>
<tr>
<td>11+33.3990</td>
<td>636060.0895</td>
</tr>
<tr>
<td>Length:</td>
<td>Easting:</td>
</tr>
<tr>
<td>133.3990</td>
<td>952805.2948</td>
</tr>
<tr>
<td>North Azimuth:</td>
<td>270°01'22''</td>
</tr>
<tr>
<td>OK</td>
<td></td>
</tr>
</tbody>
</table>

Notice that SurvCE calculates the End Station and the Northing and Easting coordinates of the station that was just created.

7. Compare the design print out to what is calculated in SurvCE.

   If the values don’t match, click on Cancel to re-enter the tangent section.

8. When the values match, click OK.

9. This will open the Input-Edit Centerline box again.

   SurvCE added the line section just entered under the **CL Element**.

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**Adding a Curve Section**

1. Click the Add tab.

2. Select Curve.

   The Curve Element box opens.
3. Verify that the PC Sta matches the PC Station that is calculated on the design printout.

4. Specify which direction the curve runs, whether it’s Left or Right by toggling the correct direction.

   A negative (-) delta angle in the report represents a Left curve and a positive is a Right.

   Enter the Arc Len (476.584) and Delta angle (54.3645) from the design print out.

5. SurvCE will calculate the Rad (Radius distance) and the coordinates of the R (Radius) point and PT (Point of Tangency), as well as the PT Sta.

   If the R (Radius) point and or PT (Point of Tangency) are stored points, they may be entered to define the curve.

6. In most cases, toggle the Tang. to prev. check box ON.

   Only in very specific situations, would you want the previous tangent bearing to be different than the curve back tangent. In these cases, you may toggle off the Tang. to the prev check box to create an angle point coincident to the PC (Point of Curvature).

**NOTE:** Using only the Arc Length, Delta angle and Direction is recommended. Most radius distances are rounded and not true and will not calculate the curve data correctly.
7. Verify that the coordinates of the R point and PT point match the design printout.

8. Click **OK**

Notice the **Input-Edit Centerline** box lists the CL Curve Element just entered.

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### Complete the Alignment Definition

Continue adding elements until the alignment is complete and matches the report ending station and coordinates.
Save the Alignment

9. Click on **Save As** and key-in a name for this alignment. This creates an **ALIGNName.cl** file in the data collector.

10. Click **OK** in the **Save CL File** dialog to complete the process. The following **Warning** dialog may appear:

11. Click **Yes** if you want to store the centerline points. The **Save Centerline Points** box shown below will display.
When assigning point IDs, it is recommended to select the **Automatic** option and give the first point ID in the series. SurvCE will store each centerline point starting with that number.

### Editing an Existing Alignment

1. In the **Input-Edit Centerline** dialog, select **Load**.
2. Choose the Centerline *.cl file
3. Use the **Add** button to continue defining the alignment
4. Select the **CL Element** and click on **Edit** to modify existing elements in the centerline
5. Click **Save As** to save the changes.

   The original centerline may be updated by overwriting the same file, or retained by saving the modified centerline to a new name.

For questions or comments on this tech note, contact your regional CAE Support Coordinator or the WSDOT CAE Help Desk at (360) 709-8013.