LAB 7 - Geometry Snaps

This lab demonstrates InRoads geometry snaps which allow the user added functions to ensure geometry point locations and direction criteria are selected at defined geometry locations. In this lab the geometry inverse command is used for illustration. Geometry snaps can be applied when creating alignments, using traverse commands or almost any geometry related command. Using geometry snaps will ensure specific locations are selected.

InRoads geometry snaps are analogous to MicroStation snaps such as the keypoint snap. When enabled, the software only allows selection at specific locations.

Chapter Objectives:

- Use both No Snap and Point Snap from the Locks toolbar

- Use the Inverse Direction tool on Cogo points

1. **Open** the MicroStation design file
   C:\Projects\12345\ROW_Survey\Drawings\Reference_Files\12345ROW_Model.dgn

2. **Open** the Geometry Project
   C:\Projects\12345\ROW_Survey\InRoads\Geometry\12345_ROW.alg that was created in the earlier lab.

3. From the Geometry Workspace pane **<R>** on the Geometry Project name *12345_ROW* and select **Set Active** from the fly-out menu.

4. Make sure the locks toolbar is open from the pull down menu select
   Tools > Locks > Toolbar dock the toolbar into the InRoads interface.
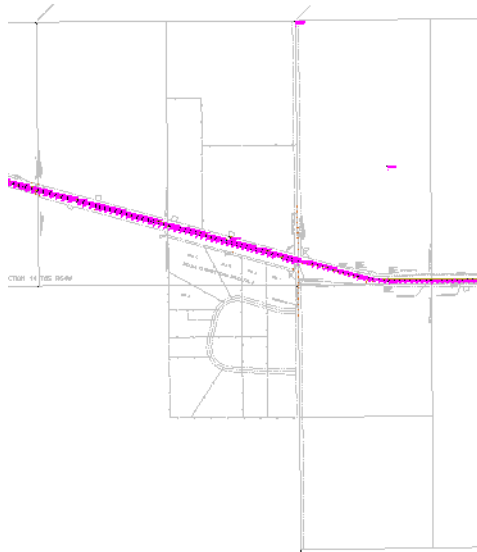

5. **<D>** on the **Element Snap Lock** icon in the InRoads Locks toolbar.

6. **<D>** on the **Element Snap Lock** icon a second time to cycle through the three geometry snap modes:

- No Snap - Element snap off
- Point snap - locks to Cogo points or alignment vertices
- Element snap - select tangents for direction definition

7. Window the MicroStation view as shown below.

> *Note:* To explore the Element Point snap use the inverse command to report distance and
> direction between cursor locations.

8. Set the *Element Snap Lock* **OFF**

9. From the pull down menu select **Geometry > Utilities > Inverse Direction** the Inverse
    Direction dialog will appear.

10. **<D>** the **Inverse** tab the **<D>** the **Interactive** button. After selecting the Interactive
    button you are prompted in the MicroStation status bar to Identify Initial Point/Key in
   Initial Point.
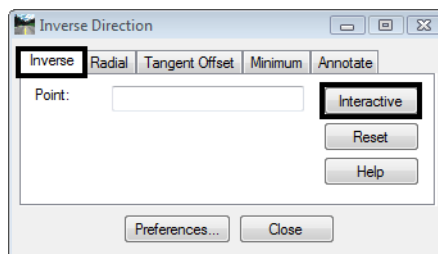
11. **<D>** near Cogo point **117** and then **<D>** near Cogo point **105**.
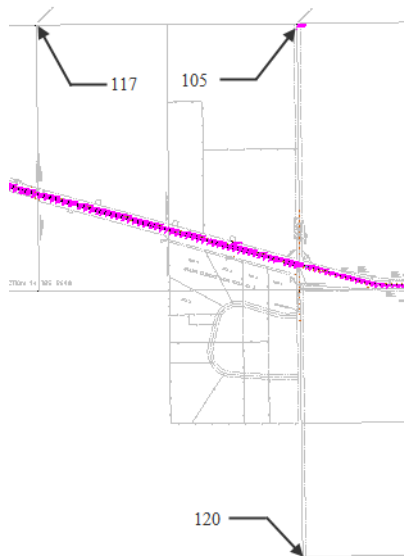
Dynamic graphics will appear and both the MicroStation and InRoads command fields will report the results. A question mark indicates that a specific Cogo point has not been selected. In this case, the bearing and distance readout reflects the values between the data <D> points given. Not between defined geometry points.

12. Toggle **ON** the *Geometry Point Snap Lock* to select defined geometry.

13. From the pull down menu select **Geometry > Utilities > Inverse Direction** the Inverse Direction dialog will appear.

14. **<D>** the **Inverse** tab the **<D>** the **Interactive** button. After selecting the Interactive button you are prompted to Identify Initial Point/Key in Initial Point.
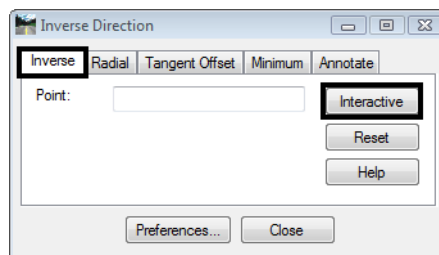
15. **<D>** near Cogo Point **117** and then **<D>** near Cogo point **105**. InRoads reports the bearing and distance between points 117 and 105.
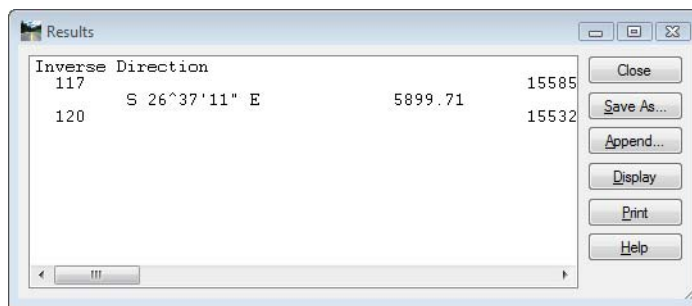

16. Move the cursor around the MicroStation view. Note how the cursor 'snaps' between specific geometry vertices.

17. Toggle *Geometry Snap Lock* **OFF**.

> ***Note:*** Geometry snaps, if enabled, operate whether the related graphics are visible or not.
>
> After initializing the Inverse Direction command, point numbers can also be keyed into the Inverse Direction tab Point key-in field.

18. From the pull down menu select **Geometry > Utilities > Inverse Direction** the Inverse Direction dialog will appear.

19. **<D>** the **Inverse** tab.

20. In the Point field key-in ***117*** then ***Tab*** key.

21. In the Point field key-in ***120*** then ***Tab*** key the results dialog will appear with the distance and direction displayed.

```
Results                                        ☐ ◻ ☒
Inverse Direction
  117                                  15585      Close
          S 26^37'11" E          5899.71         Save As...
  120                                  15532      Append...
                                                  Display
                                                  Print
                                                  Help
◄    Ⅲ                              ►
```

> ***Note:*** The geometry snap element will be covered in following exercises.

22. **<R>** on the Geometry Project name **12345_ROW** from the pop up menu **<D> Save**