

# LAB 4 - Creating Cogo Points

This lab demonstrates creating cogo points a number of different ways. The Cogo points will then be displayed in the MicroStation view.

## Chapter Objectives:

- Enabling the Cogo audit trail
- Creating Cogo points graphically
- Creating Cogo points by coordinate input
- Writing geometry vertices to the Cogo buffer
- Geometry Snaps - review only
- Cogo point intersection commands
- Create alignments with Cogo Points
- Create parallel and offset alignments
- Create parcels

## Lab 4.1 - Recording coordinate geometry results

Enabling the Cogo audit trail allows the InRoads user to record edits made to the geometry project. The edits are written to a text file sharing the location and name of the geometry project with the exception of the filename extension is defined as \*. atf.

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 InRoads Locks toolbar, **enable** the Cogo audit trail.



**Note:** Activate the Cogo audit trail only after a geometry project has been written to disk. Doing so allows the \*.atf to track filename and directory location. The audit trail file can not be executed to reconstruct geometry but tracks geometry results similar to results shown if the report lock is enabled.

4. The Cogo audit trail file, \*.atf file, can be opened at anytime with a text editor such as notepad.

## Lab 4.2 - Cogo point creation by graphic input

Prior to generating the proposed right-of-way geometry, the public land survey lines (section lines), existing right-of way, and existing parcels will be developed. Additionally the reference line alignment vertices will be sent to the Cogo buffer.

5. Use the MicroStation **Fit View** command to view the extents of the project.

- From the pull down menu select **Utilities > Saved Views** the Saved Views dialog will appear.
- On the view named **ROW Reference** <D><D> and then <D> in the MicroStation view 1. This exercise will be working in the Summit Business Park area outlined below.

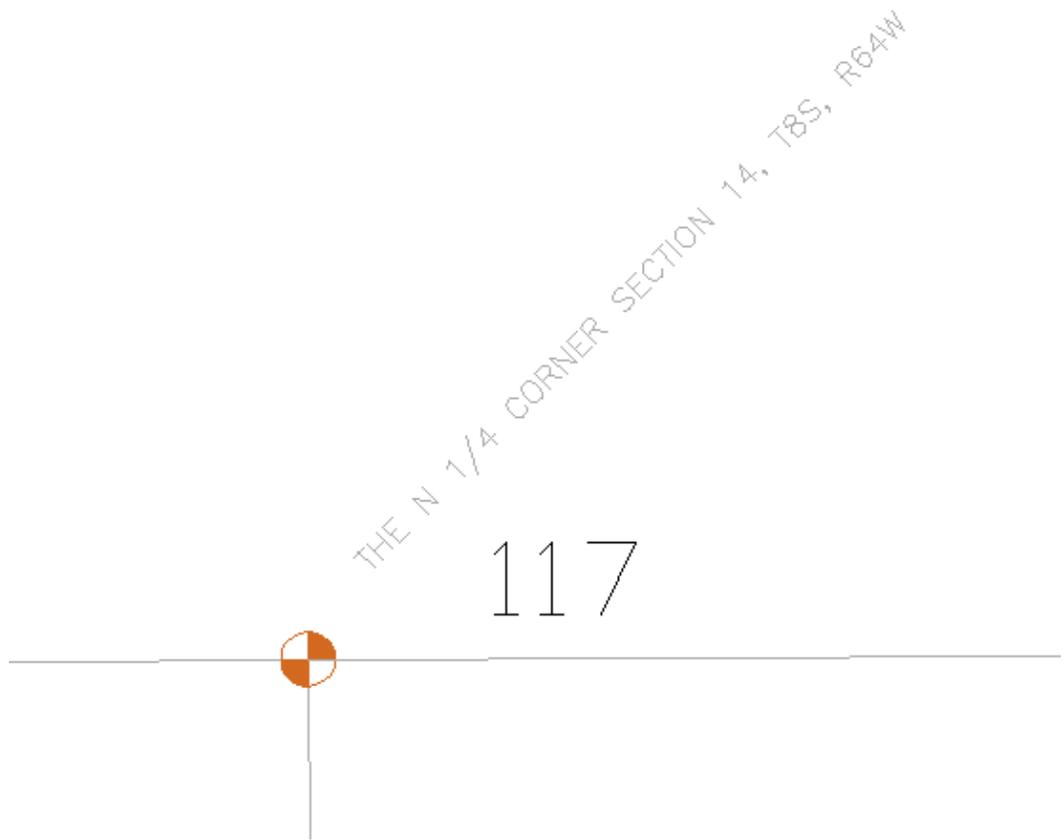


- Use the MicroStation **Window** command to zoom into this area.



**Note:** Cogo point 105 was created by the fieldbook export. The locations marked as 117 & 120 are required to establish section lines that are necessary for the development of right of way. These 2 Cogo points will be created in the following exercises.

- Use MicroStation to **Window** into the location for point **117**.



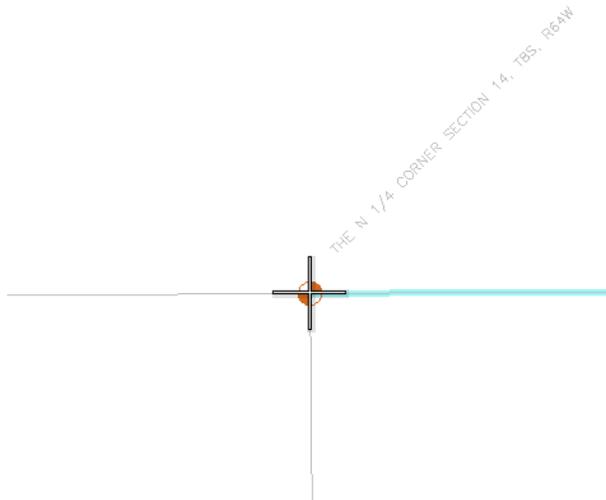
- From the pull down menu select **Geometry > Cogo Points > New** the New Cogo Point dialog will appear.

The screenshot shows the "New Cogo Point" dialog box. The "Name" field is empty. The "Northing" field is 0.00, the "Easting" field is 0.00, and the "Elevation" field is 0.00. The "Horizontal Alignment" is set to "C\_Centerline". The "Station" field is 0+00.00, the "Offset" field is 0.00, and the "Elevation" field is 0.00. The "Description" field is empty, and the "Style" is set to "Default".

- In the **Name** field key-in **117**.

12. <D> the Northing Easting Elevation **Target** button to interactively define the coordinates. The New Cogo Point dialog will temporarily minimize to allow for more of the MicroStation view to be available.

13. <T> then <D> to the CAD graphics at the section corner. The New Cogo Point dialog will reappear with the coordinates applied.



14. In the *Description* field key-in ***N 1/4 Cor Section 14.***

15. From the *Style* drop down list select the **RW\_Working-exist**.

The 'New Cogo Point' dialog box is shown with the following fields and values:

- Define By: Northing/Easting
- Name: 117
- Northing: 1558514.31
- Easting: 3277056.40
- Elevation: 0.00
- Horizontal Alignment: C\_Centerline
- Station: A 396+19.48
- Offset: -1609.99
- Elevation: 0.00
- Description: N 1/4 Cor Section 14
- Style: RW\_Working-exist

16. <D> **Apply** then <D> the **Close** buttons. The Cogo point is created and displayed to the MicroStation screen.

The 'New Cogo Point' dialog box is shown with the following fields and values:

- Define By: Northing/Easting
- Name: 117
- Northing: 1558514.31
- Easting: 3277056.40
- Elevation: 0.00
- Horizontal Alignment: C\_Centerline
- Station: A 396+19.48
- Offset: -1609.99
- Elevation: 0.00
- Description: N 1/4 Cor Section 14
- Style: RW\_Working-exist

If Report lock is ON, a Results dialog opens.

The 'Locks' dialog box is shown with the following fields and values:

- Locks: <Unnamed>

The 'Results' dialog box is shown with the following fields and values:

- Results: Create Cogo Point 117 15585

17. <D> the **Close** button in the Results dialog.

## Lab 4.3 - Cogo point creation by coordinate input

In the New Cogo Point dialog, define Cogo point 120 which is located south of Summit Business Park

1. In the *Name* field key-in **120**.

**Note:** When entering subsequent Cogo points the Name field automatically increments to the next unused point identifier. Also when entering coordinates do not input commas, they are shown here for readability purposes.

2. From another source, the SE Corner of Section 14 (future point 120) has been determined as having the coordinate values of:

- ◆ North = **1,553,239.97**
- ◆ East = **3,279,699.86**

3. In the *Description* field key-in **SE Cor Section 14**
4. From the *Style* drop down list select **RW\_Working-exist**

The screenshot shows the 'New Cogo Point' dialog box with the following fields and values:

- Define By: Northing/Easting
- Name: 120
- Northing: 1553239.97
- Easting: 3279699.86
- Elevation: 0.00
- Horizontal Alignment: C\_Centerline
- Station: B 434+44.66
- Offset: 2787.36
- Elevation: 0.00
- Description: SE Cor Section 14
- Style: RW\_Working-exist

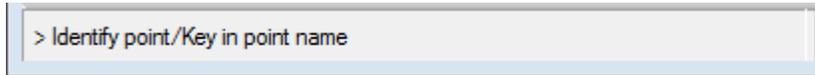
The 'Apply' button is highlighted with a black border.

5. **<D> Apply** then **<D>** the **Close** buttons. The Cogo point is created and displayed to the MicroStation screen.

This screenshot is identical to the previous one, but the 'Apply' and 'Close' buttons are highlighted with black borders, indicating they are the next steps in the process.

## Lab 4.4 - Centering a MicroStation View on a Cogo Point

1. From the pull down menu select **Geometry > Cogo Points > Center Point** the MicroStation status bar prompts you to *Identify point/Key in point name*.



2. In the MicroStation Key-in window, key-in **120** <Enter>



3. If more than one view is opened you are prompted to Select a View.
4. <D> in any MicroStation **View** the MicroStation view is repositioned to center the specified Cogo point.

**Note:** The above command will not change the display volume of the MicroStation screen. You may be required to zoom in or out to achieve desirable results.

5. Continue to **Center** other cogo points **105** and **117**.
6. Open the Cogo Audit trail file to view results.

