

LAB 14 - Create a 40-Scale Plan Sheet

The CDOT default scale for plan sheets is 100. This lab illustrates how to create a special 40-scale plan sheet for the intersection.

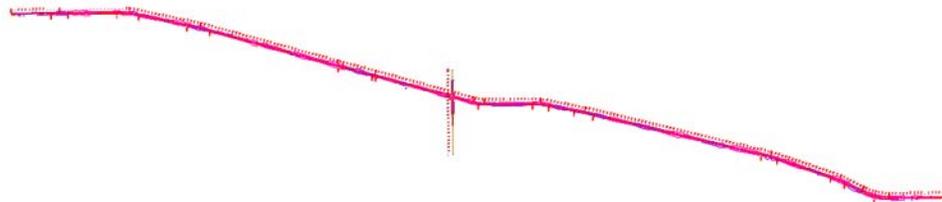
Chapter Objectives:

After completing this exercise you will know how to:

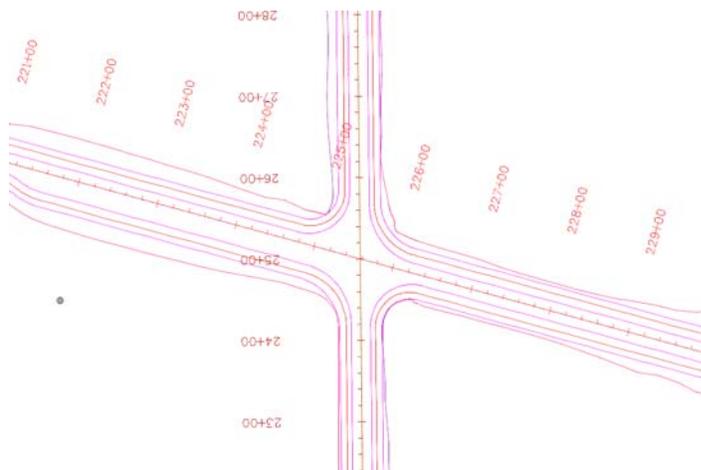
- Create a Plan sheet
- Scale the border for a 40-scale drawing
- Set the **Annotation Scale** to match the border and plot scale.

Lab 14.1 - Open the Model File

1. Start MicroStation and open 12345DES_Model.dgn from the project's \Design\Drawings\Reference_Files folder.
2. Select **File > Raster Manager** and turn off the display of the raster files.
3. Fit the view.

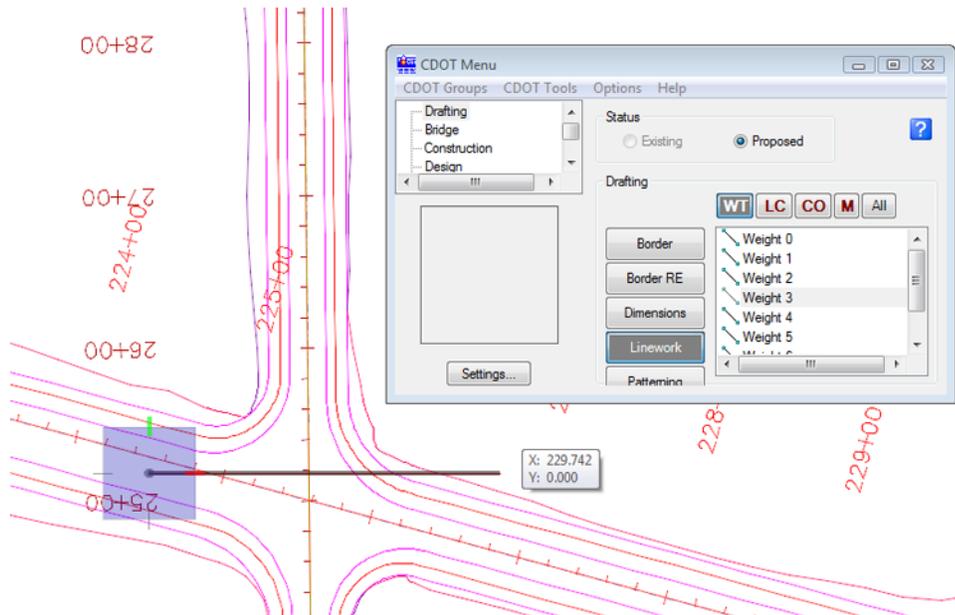


4. Window around the intersection as shown.

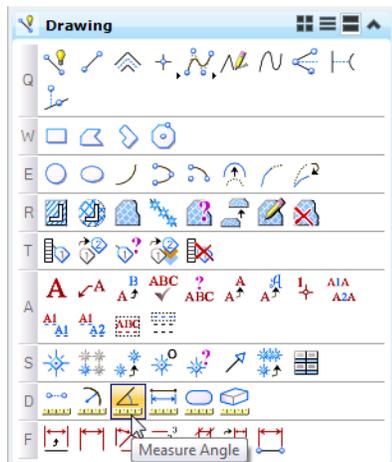


Lab 14.2 - Determine the Rotation Angle for the Sheet

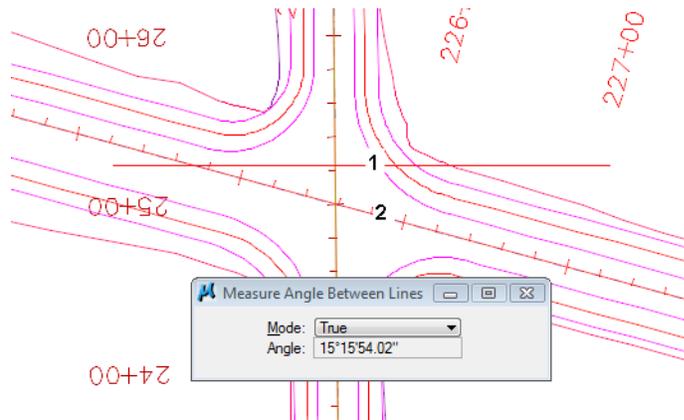
1. On the CDOT Drafting Menu, set Line Weight to 3.
2. Using AccuDraw, draw temporary horizontal line in the approximate location shown.



3. Select the Measure Angle command from the Measure toolbar under the **Drawing** task tab..



4. <D> on the horizontal line, then <D> on the SH86 proposed centerline.



MicroStation displays the result as approximately 15 degrees. This is the rotation angle needed to rotate the view to horizontal at the intersection in a counter-clockwise direction.

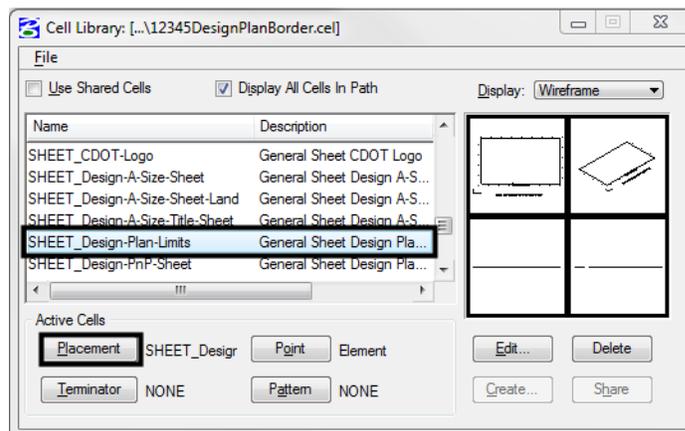
5. Delete the temporary measurement line.

Lab 14.3 - Placing the Plan Limits Cell

1. Select Cells from the Primary toolbar to open the cell library.

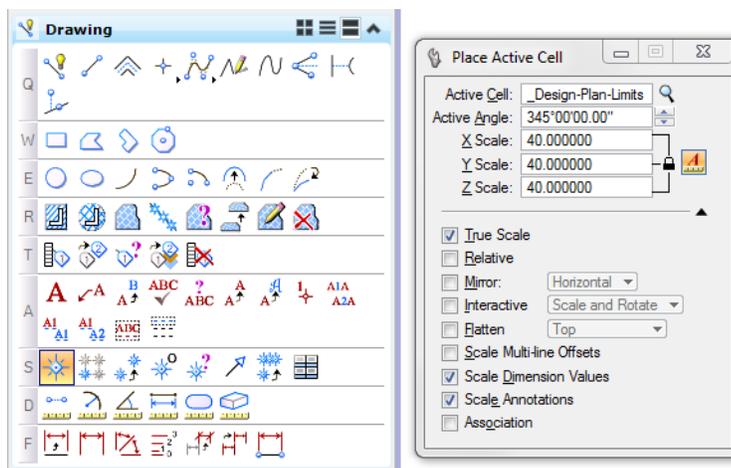


2. Toggle on **Display All Cells in Path** and select the SHEET_Design-Plan-Limits cell and make it the active placement cell.



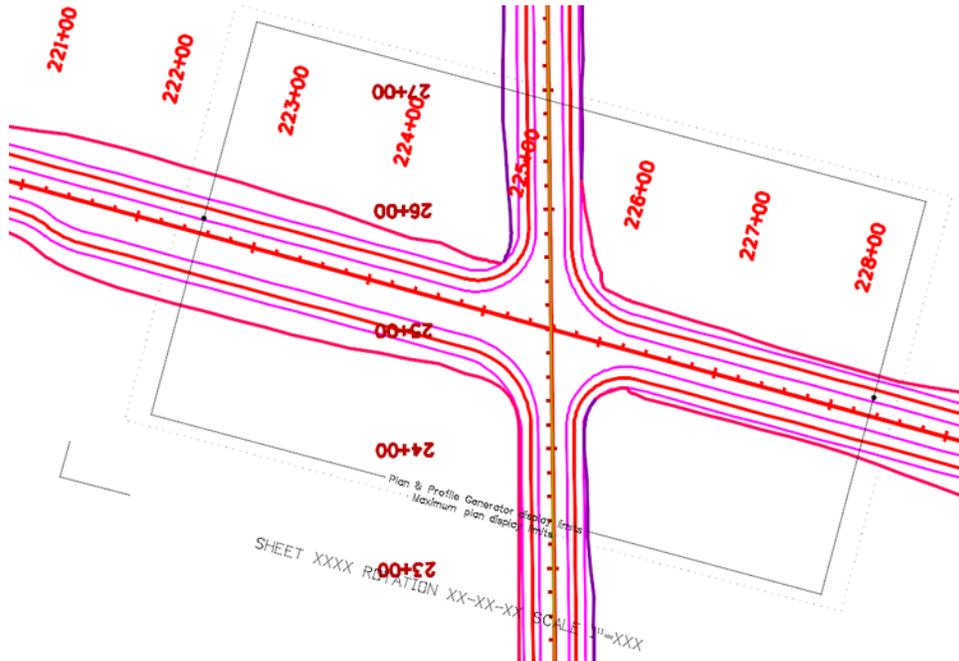
Note: This cell helps to define the plan sheet limits in the model file before placing the border in the sheet file. It contains text characters that can be edited to indicate sheet name, rotation, & scale. The outer line-work depicts the maximum display limits for graphics as it relates to the border sheet. The inside shape reflects ½ inch inside this maximum limit and is the clipping boundary. All graphical information for this cell is on to the MicroStation level, **DRAFT_INFO_No-Plot**.

3. Close the Cell Library dialog box.
4. Turn on the level **DRAFT_INFO_No-Plot** if it is not currently on.
5. Select the **Place Active Cell** command and set the **Active Angle** to **-15** and the **Scale** to **40**.

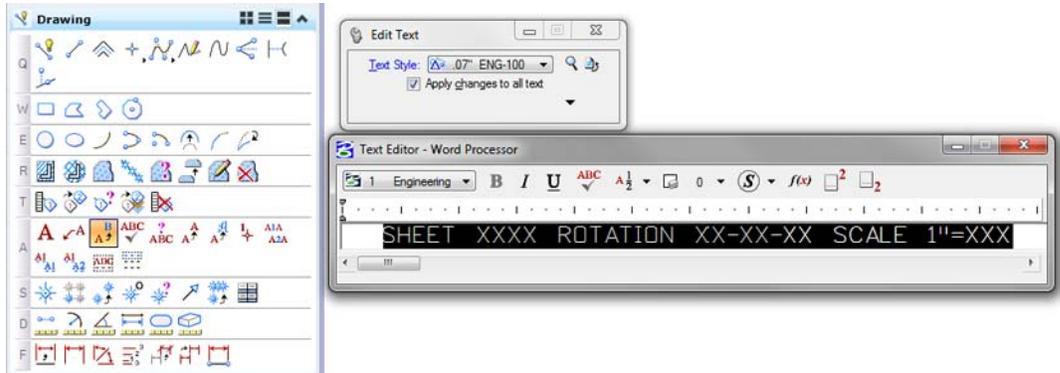


Note: The scale should be set to the plot scale of the sheet. Since the positive angles are measured counterclockwise in MicroStation, enter the 15 degree angle as **negative**. MicroStation converts this to a positive 345 degree angle.

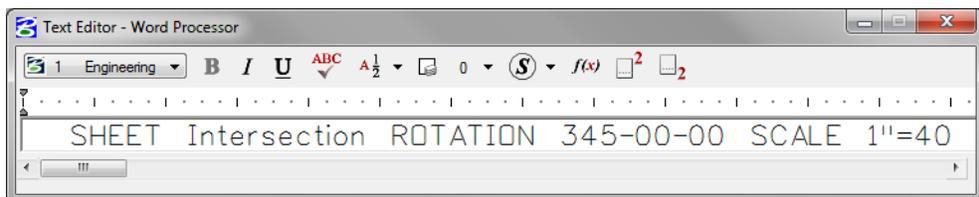
- Place plan limit cell in the approximate location shown.



- Select the **Edit Text** command and <D> on the text at the bottom of the cell.



- In the **Text Editor**, make the edits as shown.



- <D> anywhere in the view to accept.

Lab 14.4 - Create the Drawing File

1. From the MicroStation menu bar, select **File > New**.
2. Set the directory to **C:\Projects\12345\Design\Drawings**.
3. Verify the **Seed File** is set to **3D-Seed_CDOT.dgn**, if not then select it as the seed file.
4. In the **Name** field, key in a drawing file name **12345DES_Plan21.dgn**
5. In the **New** dialog box, select **Save**. The **Open** button is used to accept the new file name and open the drawing at the same time.
6. The file you created will be highlighted. Select **Open** to open that file.

Lab 14.5 - Attach the Model File

1. Attach the **12345DES_Model.dgn** reference from the **C:\Projects\12345\Design\Drawings\Reference_Files** folder (use the **Directory** pull-down to quickly find the folder).
2. Verify the **Attachment Method** is set to **Interactive**. Select **Open**.
3. In the **Reference Attachment Settings** box:
 - Key in a logical name of **Design** and **Proposed Intersection** for a **Description**.
 - Verify that **Orientation** is set to **Coincident-World** and the **Scale** is set at **1:1**

- Set Nested Attachment to Live Nesting and set Depth to 1.

Reference Attachment Settings for 12345DES_Model.dgn

File Name: 12345DES_Model.dgn
Full Path: ...Drawings\Reference_Files\12345DES_Model.dgn
Model: CDOT Default

Logical Name: Design
Description: Proposed Intersection

Orientation:

View	Description
Coincident	Aligned with Master File
Coincident - World	Global Origin aligned with Master File
<input checked="" type="checkbox"/> Standard Views	
<input checked="" type="checkbox"/> Saved Views	
Named Fences (none)	

Detail Scale: 1"=100'
Scale (Master:Ref): 1.000000 : 1.000000

Named Group:
Revision:
Level:
Nested Attachments: Live Nesting Depth: 1
Display Overrides: Allow
New Level Display: Use MS_REF_NEWLEVELD
Global LineStyle Scale: Master

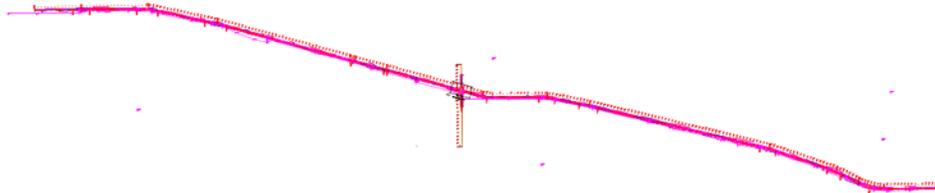
Synchronize with Saved View

Toggles

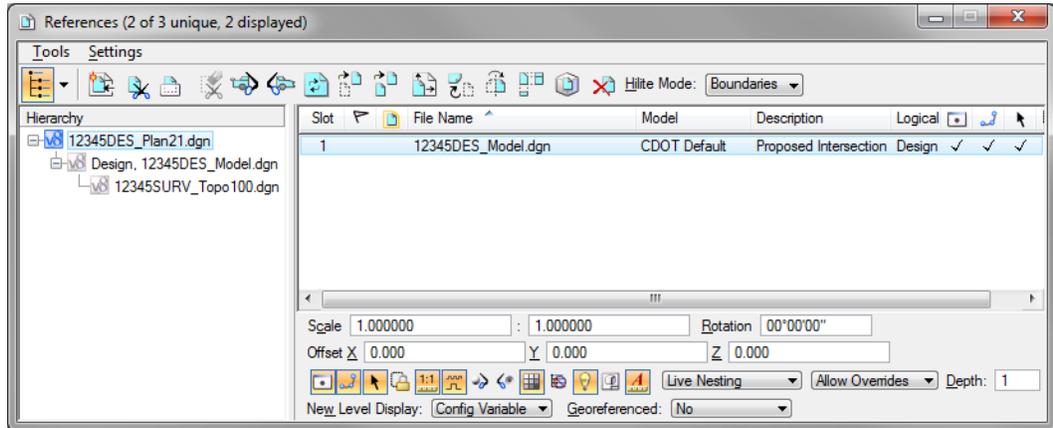
Drawing Title
 Create
Name: Drawing

OK Cancel

4. Select OK.
5. Fit the view.



- Turn on the **Show Hierarchy** and expand the hierarchy list.

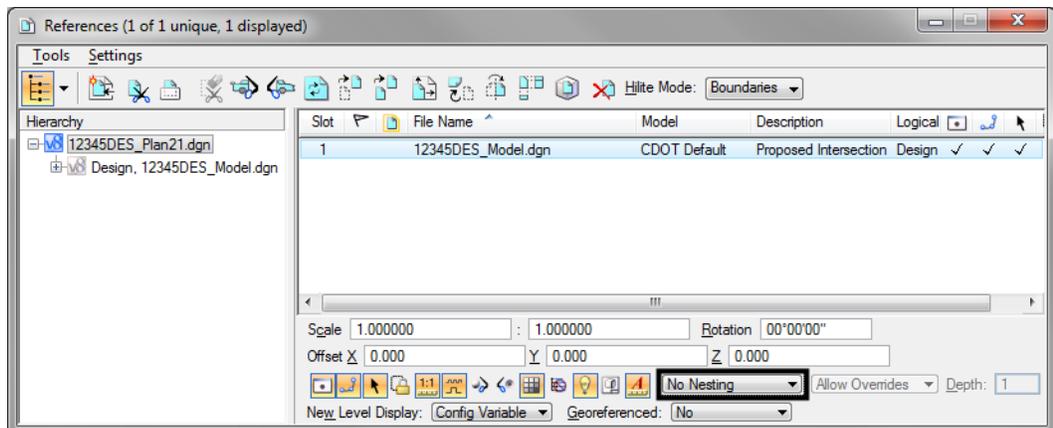


Note that with nested references, the **Survey/Topo** reference is nested below the Design model file.

The **Survey/Topo** file that is attached nested to the Model file is for a 100 scale plot. However, you're creating an intersection sheet at a 40 scale. Therefore, you need to attach the correct scale Survey/Topo reference.

Note: Coordinate with the Region Surveyor when you are creating sheets that are not at a 1:100 scale. They will provide you with the topography and survey MicroStation files at a different scale. Otherwise, the line work and cells will not be the correct size for the print scale.

- Select the Design model reference and change the nesting to **No Nesting** to remove the 100 scale **Survey/Topo** reference.



8. Attach the 12345SURV_Topo40.dgn file from the project's \ROW_Survey_Drawings\Reference_Files folder with the options shown.

Reference Attachment Settings for 12345SURV_Topo40.dgn

File Name: 12345SURV_Topo40.dgn
 Full Path: ...Drawings\Reference_Files\12345SURV_Topo40.dgn
 Model: CDOT Default

Logical Name: 40 Scale Survey
 Description: 40 Scale Survey

Orientation:

View	Description
Coincident	Aligned with Master File
Coincident - World	Global Origin aligned with Master File
Standard Views	
Saved Views (none)	
Named Fences (none)	

Detail Scale: 1"=100'
 Scale (Master:Ref): 1.000000 : 1.000000

Named Group:
 Revision:
 Level:
 Nested Attachments: Live Nesting Depth: 1
 Display Overrides: Allow
 New Level Display: Use MS_REF_NEWLEVELD#
 Global LineStyle Scale: Master

Synchronize with Saved View

Toggles

Drawing Title
 Create
 Name: Drawing

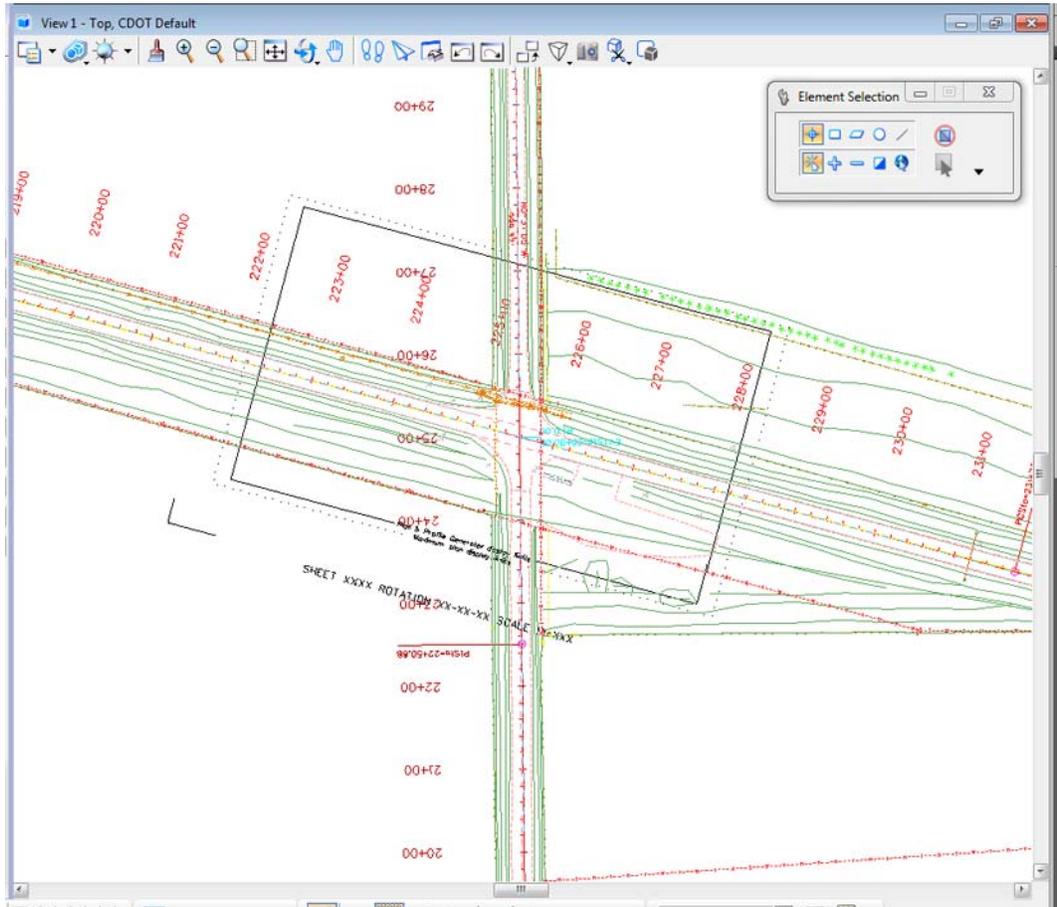
OK Cancel

9. Fit the view.

Lab 14.6 - Rotate the View

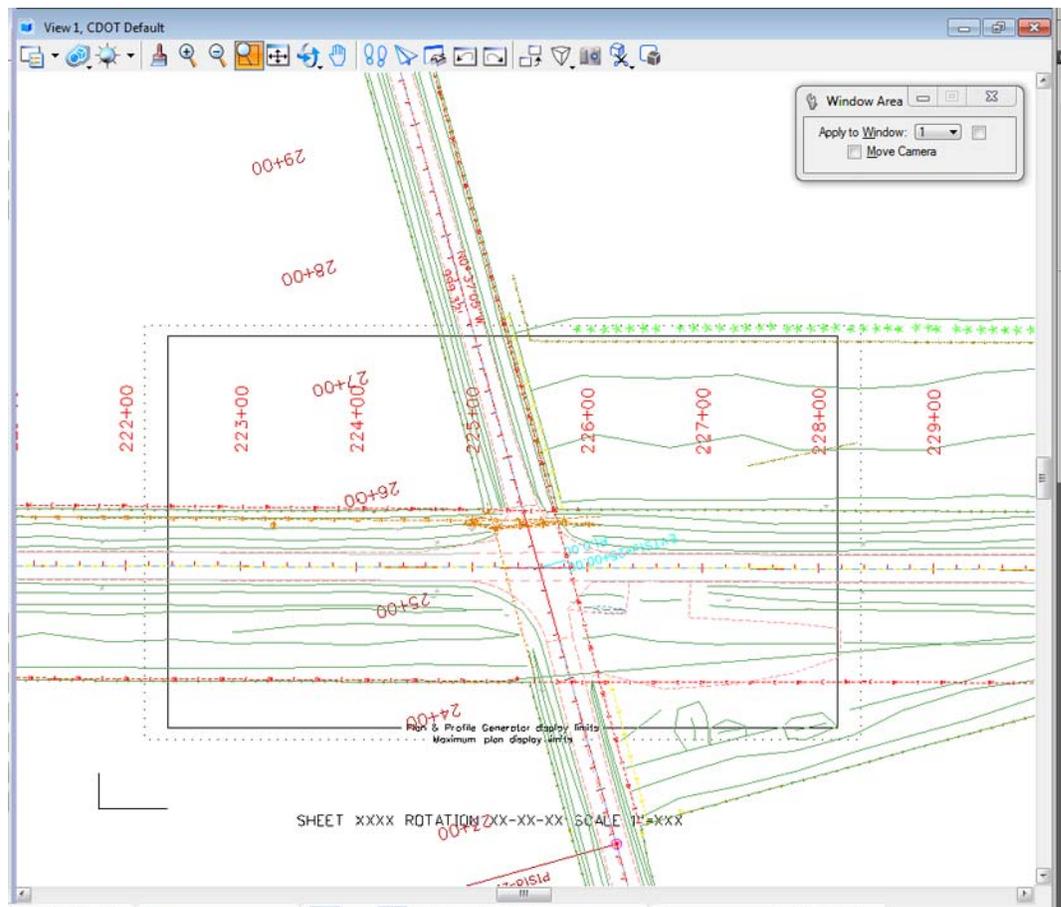
Rotate the view so that the portion of the mainline alignment through the intersection appears horizontal in the view.

1. **Window** around the intersection as shown.



2. Use the **Rotate View, 3-Point** method to rotate the view so that the plan limits cell is horizontal to the view

Note: You can also use the keyin **rv=,,15** since you know the rotation angle from the plan limits cell. The commas are used as placeholders since you are not rotating about X and Y axis. You are only rotating about the Z axis – the perpendicular axis to the Top View.



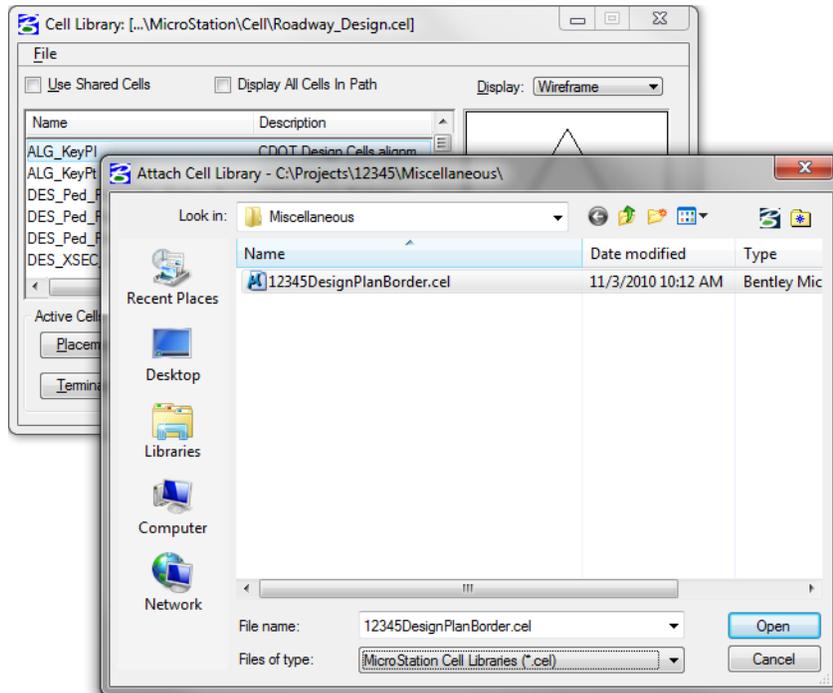
The view is rotated so that the alignment appears horizontal.

Note: Remember that you are rotating the view, not the graphics. The graphics maintain their original coordinate position in the sheet file.

Lab 14.7 - Attach the Border Cell

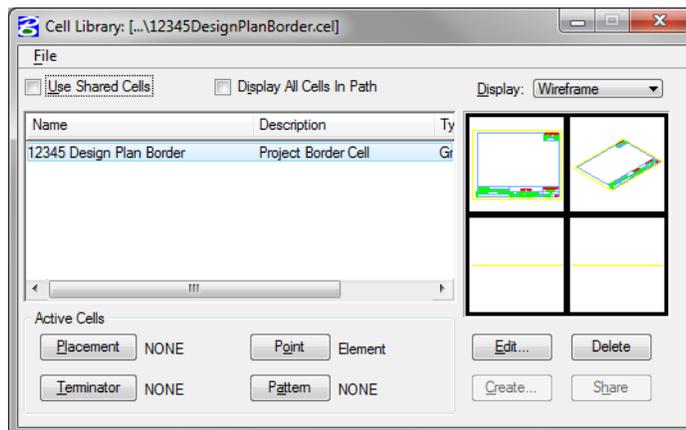
1. Select Cells from the Primary toolbar.
2. In the Cell Library dialog box, select File > Attach and navigate to the C:\Projects\12345\Miscellaneous folder.

3. Select the **12345DesignPlanBorder.cel** file.



This is the project-specific border created earlier.

4. Select **Open** to attach the cell library.

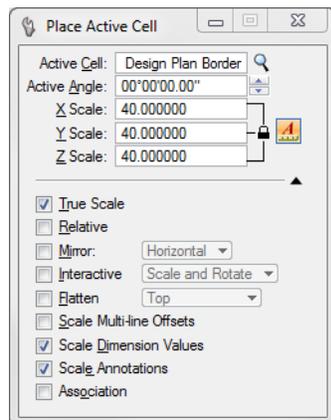


The cell library only has one cell (model) – the **12345 Design Plan Border** that you previously created.

5. Select **Placement** to make the border the active placement cell.
6. Close the **Cell Library** dialog box.

Lab 14.8 - Place the Border

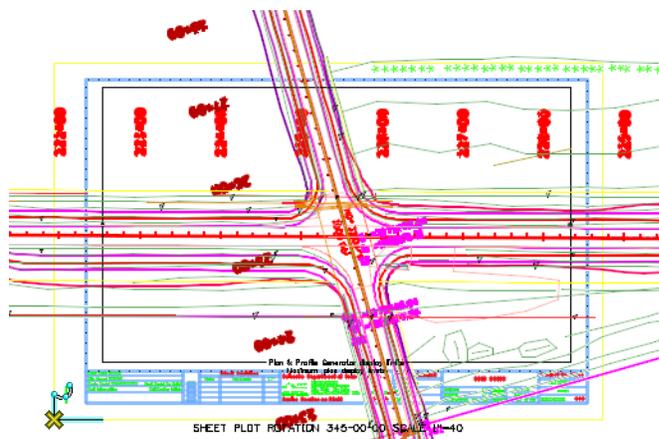
1. Select Place Active Cell from the Cells toolbar.
2. In the Tool Settings box, set **Active Angle** to **0** and the **Active Scale** to **40** for X, Y and Z.



Note: The **Active Angle** is view independent and not associated with view rotation. Therefore, the x-axis is always horizontal regardless of the view rotation. You will not need to set this for correct placement of the North Arrow or other cells.

Note: The **Active Scale** scales the border up 40 times around the full-sized graphics to match the plot scale.

3. AccuSnap on the lower left corner of the plan limits cell as shown to place the border.

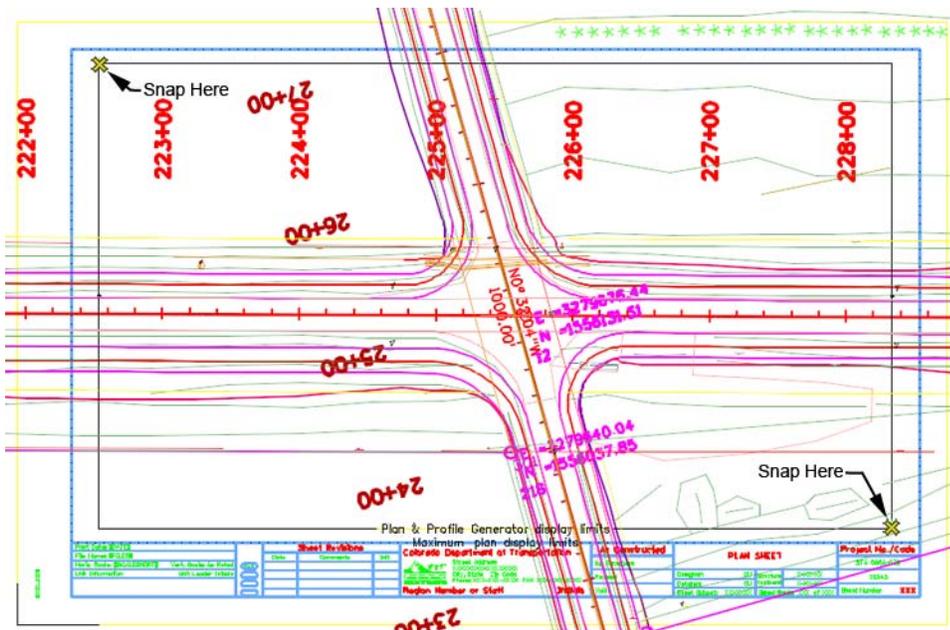
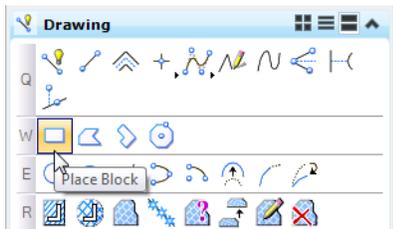


4. <D> to place the cell.
5. <R> to exit the command.

Lab 14.9 - Place the Clip Boundary

1. From the CDOT Menu Explorer select **Drafting**.

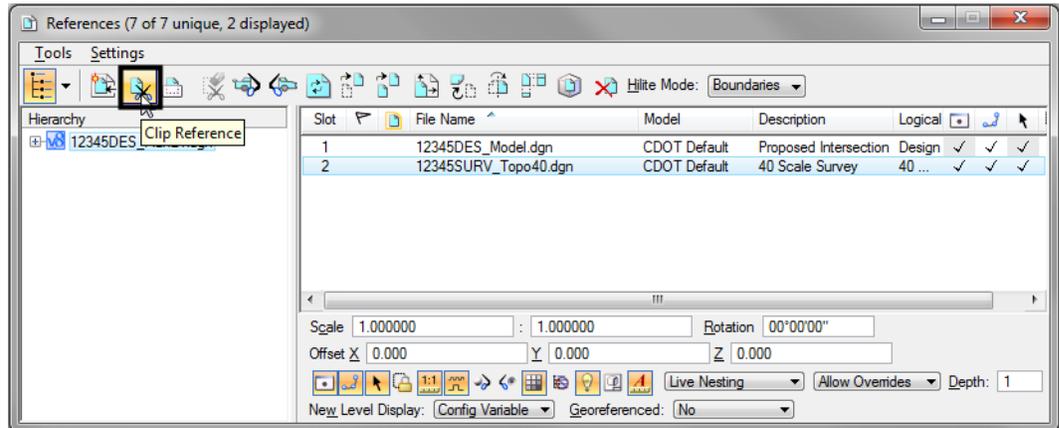
2. Set the Category to **Border**.
3. Select the Item **Clip Boundary**.
4. Select the **Place Block** icon from the *Polygons* toolbar under the *Drawing* task tab and draw the clipping boundary by snapping on the opposite corners of the plan limits cell as shown (interior most line).



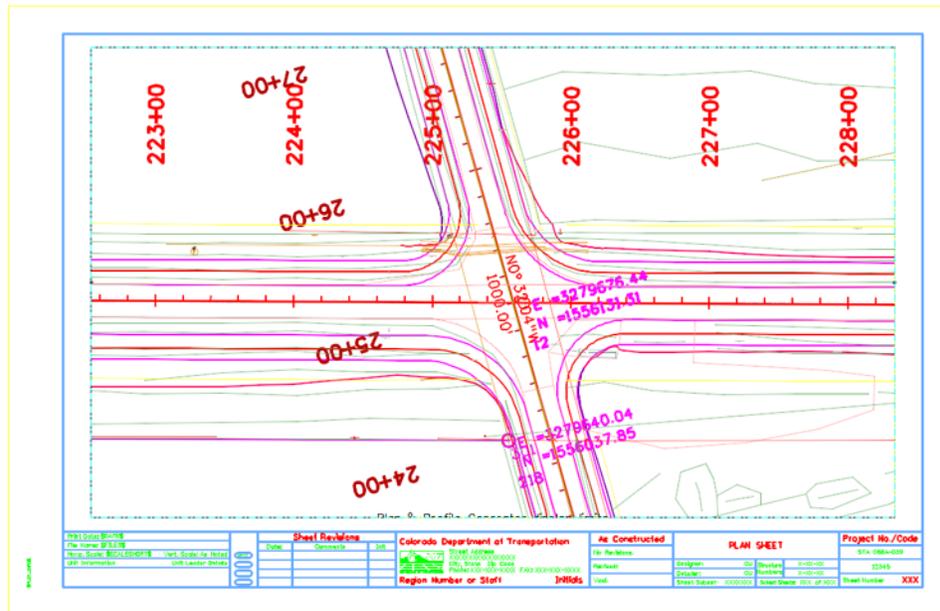
Lab 14.10 - Clip the Reference File

1. In the References dialog box, highlight both the Design and Survey/Topo references for clipping.

2. Select the **Clip Reference** icon.



3. In the Tool Settings box, verify **Method** is set to **Element**.
4. When prompted to **Identify Clipping Element**, select the rectangular clipping boundary you just placed.
5. <D> to accept.
6. Fit the MicroStation view and **Save Settings** after clipping the reference files.

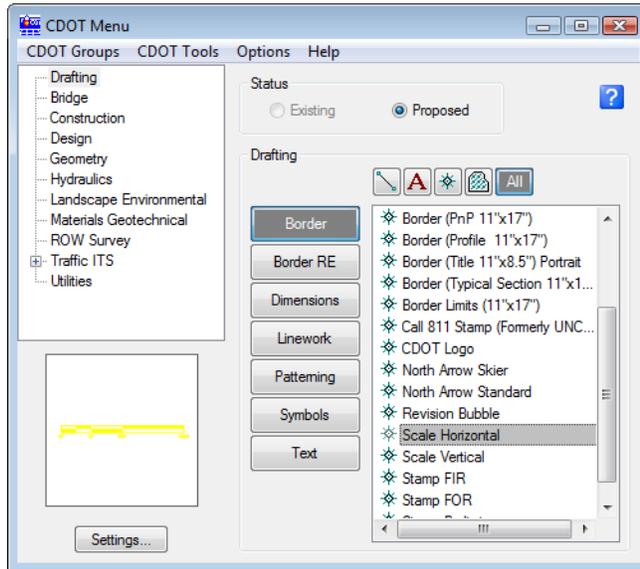


Note: Once the clipping boundary is placed, do not delete it. The clipping region of the reference file will be lost if the boundary is deleted.

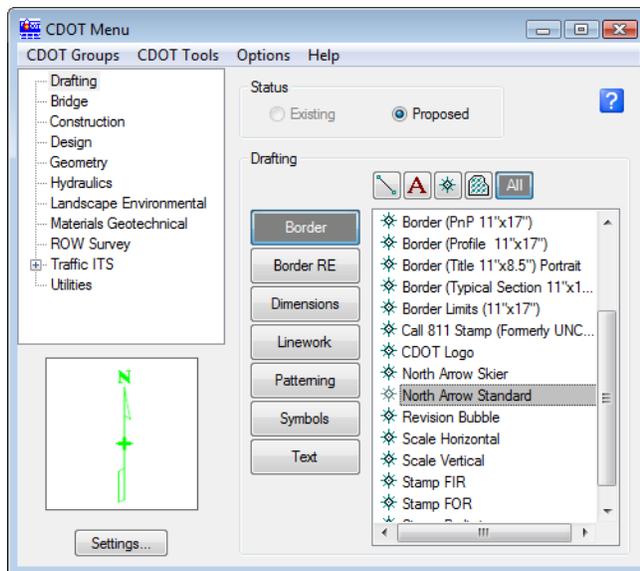
Lab 14.11 - Place the Bar Scale and North Arrow

1. From the CDOT Menu Explorer, select **Drafting**.
2. Set the Category to **Border**.

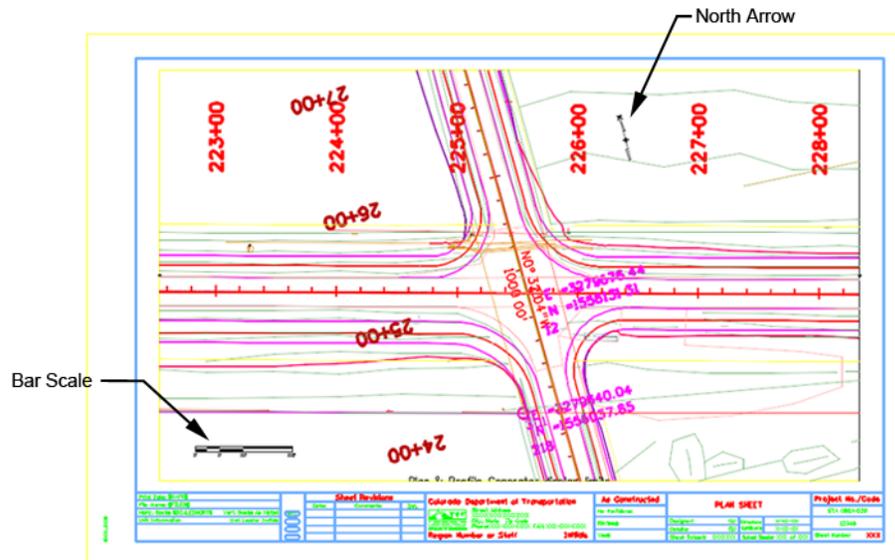
3. Select the Item Scale Horizontal.



4. When prompted to locate the origin of the Bar Scale, <D> inside the sheet border as shown below.
5. Select the Item North Arrow Standard.



6. When prompted to locate the **North Arrow**, <D> inside the sheet border as shown.



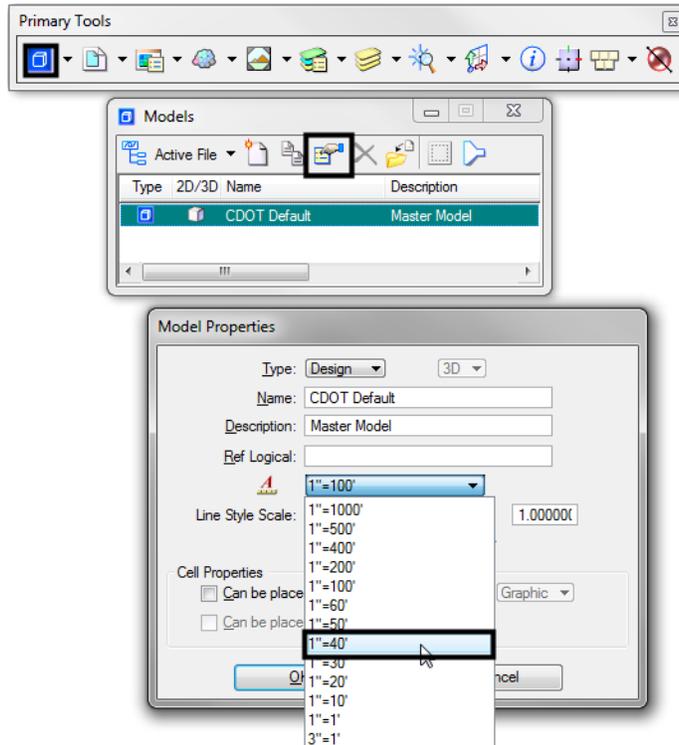
Lab 14.12 - Set the Text Scale Factor

Set the Text Scale Factor to match the border and plot scale factors.

1. Select **Models** from the **Primary** toolbar.
2. In the **Models** box, select **Model Properties**.

Note the **Annotation Scale** is set to 1:100 – the CDOT default.

3. Change the **Annotation Scale** to **1:40**.



4. Select **OK**.
5. At the **Alert** message, select **Yes** to propagate the changes.
6. **Close** the **Models** box.

The **Annotation Scale** for the file now matches the border and plot scales. Later, when text and dimensions are placed in this file, they will be the correct size.

Lab 14.13 - Edit the Bar Scale

1. Window in to the bar scale cell.
2. Select the **Edit Text** command from the **Text** toolbar.
3. <D> on the **X'** text on the bar scale.
4. Change the text to **20'** and <D> to accept.



5. Make the other edits as shown.



6. Fit the view.
7. Save Settings.
8. Exit MicroStation.

