

LAB 20 - Annotate the Intersection Plan/Profile Sheet

In this lab, you'll annotate the plan/profile sheet with text, notes, and custom text strings using the CDOT Menu.

Chapter Objectives:

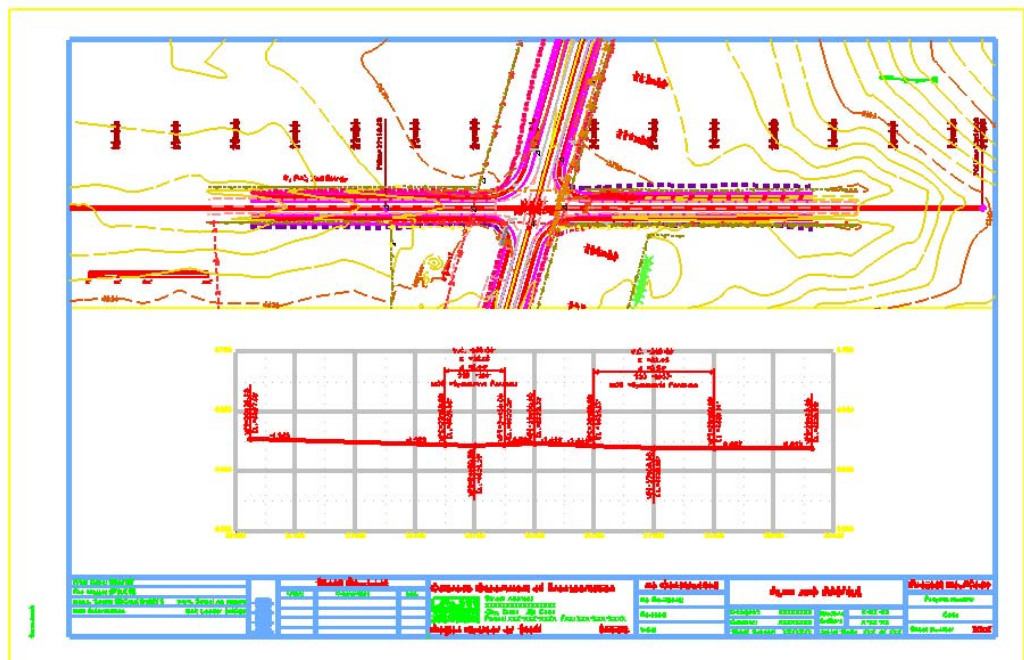
After completing this exercise you will know how to:

- Set the active angle for placing text
- Place Text using the CDOT Menu
- Rotate text
- Place notes with leader lines and a line terminator
- Create and place custom text strings for utility lines using the CDOT Menu

Lab 20.1 - Open Project Plan/Profile Sheet

Start MicroStation

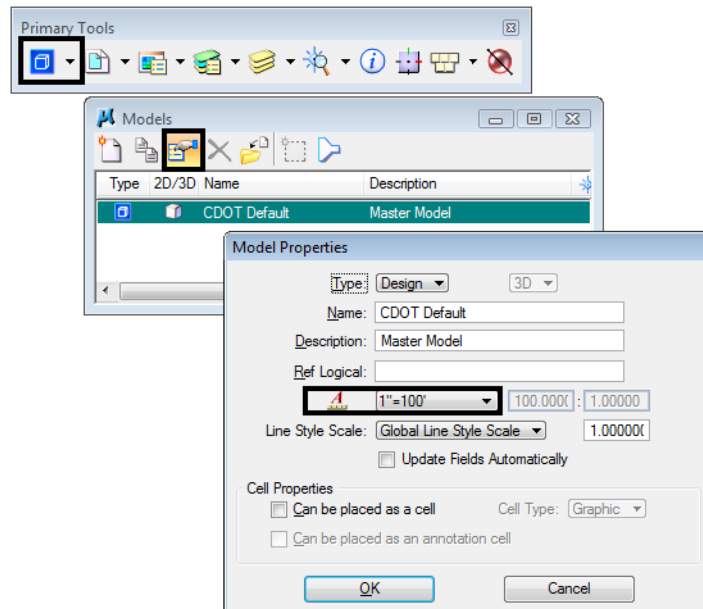
1. Start MicroStation and open **12345DES_PnP19.dgn** from the **C:\Projects\12345\Design\Drawings** folder.



Check Text Annotation Scale

1. Select **Models** from the **Primary** toolbar.

- In the **Model** box, select **Edit Model Properties**.



- Note that the **Text Annotation Scale** is set to **1"=100'** (the default setting from the seed file).

Note: The **Text Annotation Scale** matches the border scale, which matches the scale for plotting – 1"=100'.

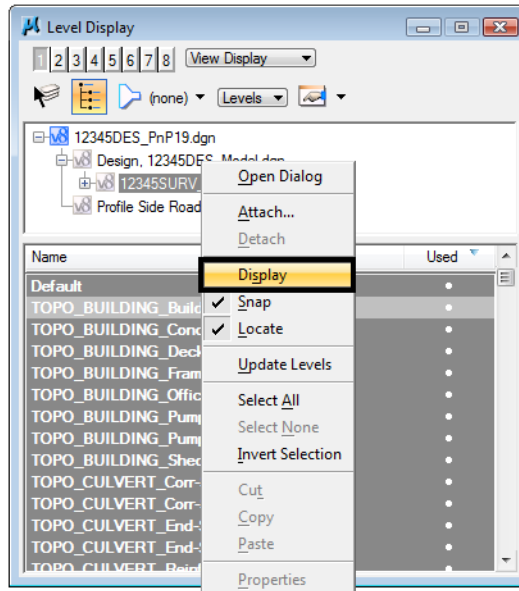
- Cancel the **Model Properties** box.
- Close the **Models** box.

Work with sheet levels and references

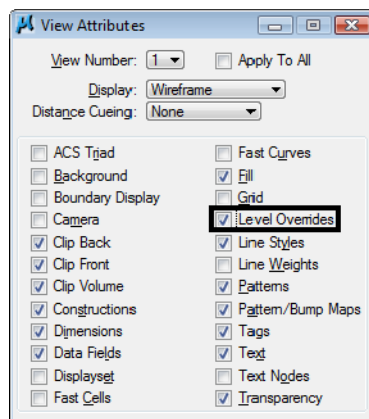
The plan limits cell placed along the mainline alignment in the Design model file appears in the sheet. This is on a No Plot level. However, if you don't want to see it, you can turn it off.

- Open **Level Display** and turn off the **DRAFT_INFO_No_Plot** level in the **Design** reference.

- In Level Display, turn off the **Survey/Topo** reference.



- Select **Settings > View Attributes**, toggle on **Level Overrides**.



This applies the Symbology Overrides set in the CDOT level libraries for “graying out” the existing contour levels.

Edit the bar scale text

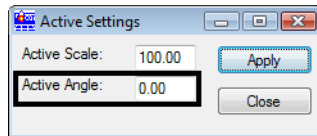
- Window** in on the bar scale cell in the lower left portion of the plan view.
- Use the **Edit Text** command to edit the text as shown for a 100 scale plot.



Label the Intersection Alignments

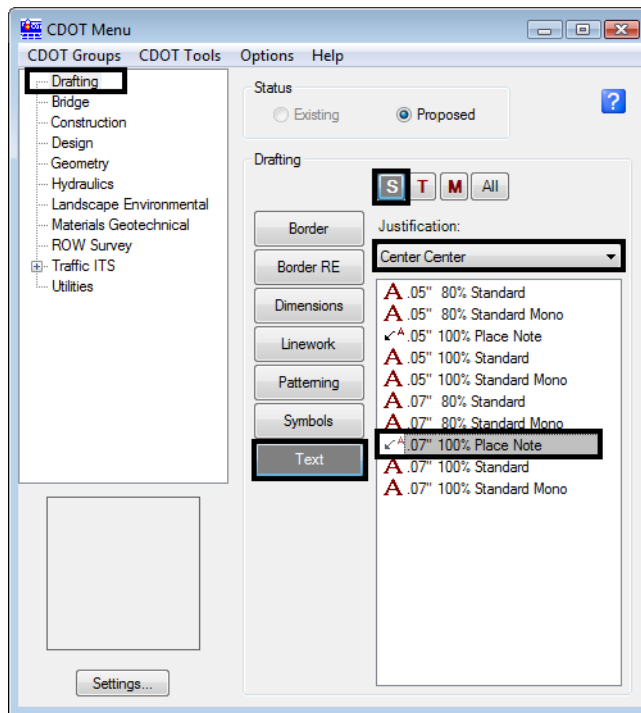
Set the active angle for placing the county road text

1. On the **CDOT Menu**, select **Settings**.
2. Set the **Active Angle** to **0**, **Apply** and then **Close** the box.



Set the text attributes using the CDOT Menu

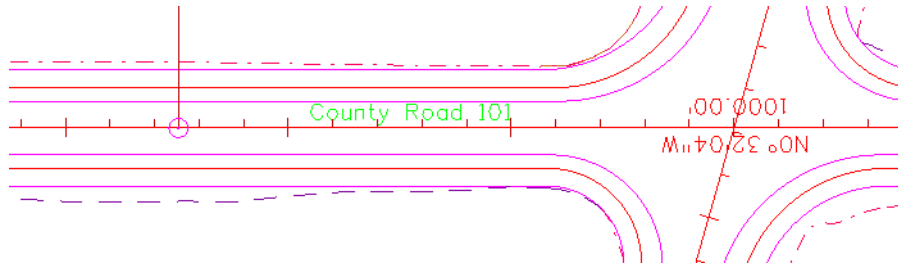
1. On the **CDOT Menu Explorer**, select **Drafting**. Set the category to **Text** and set the following options:
 - ◆ Filter: Standard (S)
 - ◆ Justification: Center Center
 - ◆ Item: .07" 100% Standard



This sets the active level to **DRAFT_Text-3** and automatically selects the **Place Text** command.

2. In the **Word Processor** box, key in **County Road 101**.

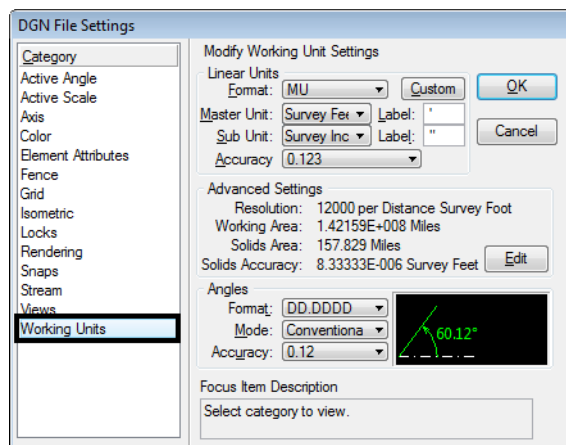
3. <D> to the left of the intersection as shown to label the road.



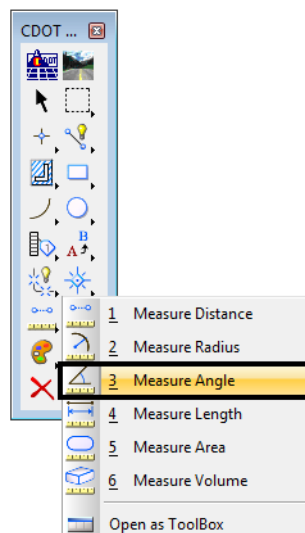
4. <R> out of the **Place Text** command when done.

Set the active angle for the main alignment text

1. Select **Settings > Design File > Working Units**.
2. Set the **Options** as shown for **Conventional Angle Mode, Decimal Degrees**.



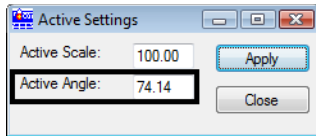
3. Select the **Measure Angle** command from the **Measure** toolbar.



4. <D> on the centerline of the side road.
5. <D> on the centerline of SH 86.

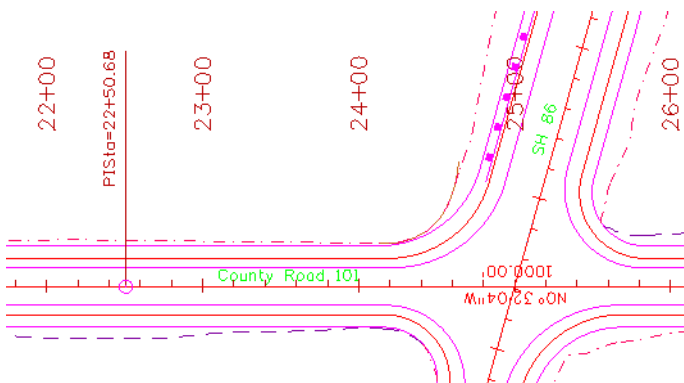
The angle reads out at 74.14 degrees.

6. From the CDOT Menu, select **Settings** and set the **Active Angle** to **74.14**, **Apply** and then **Close**.



Place the SH 86 text at the active angle

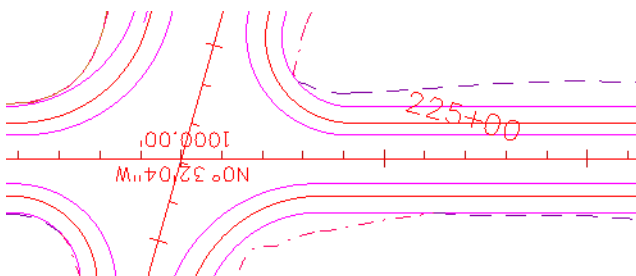
1. On the **CDOT Menu** select **Drafting > Text** and select **.07** again.
2. In the **Word Processor** box, key in **SH 86**.
3. <D> when shown to label the road.



4. <R> out of the **Place Text** command when done.

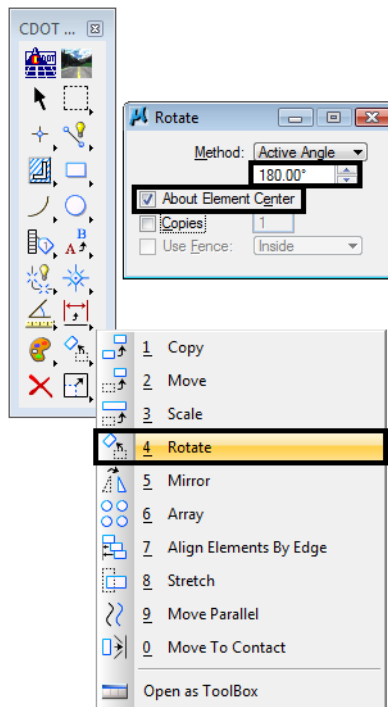
Lab 20.2 - Rotate the InRoads alignment text

1. Window in at the intersection as shown.

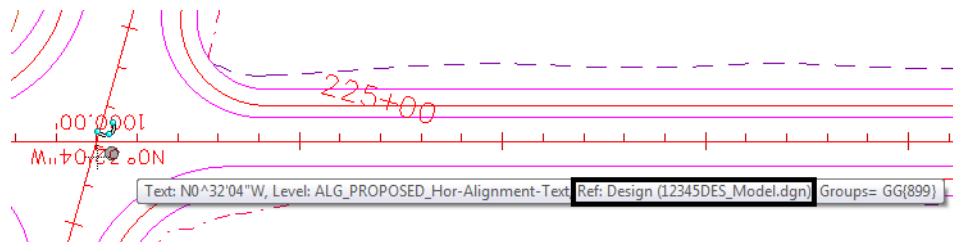


2. Select the **Rotate** command from the **Manipulate** toolbar.

- Set the **Method** to **Active Angle**, set the **Angle** to **180** and toggle **On About Element Center**.



- <D>** on the bearing text.

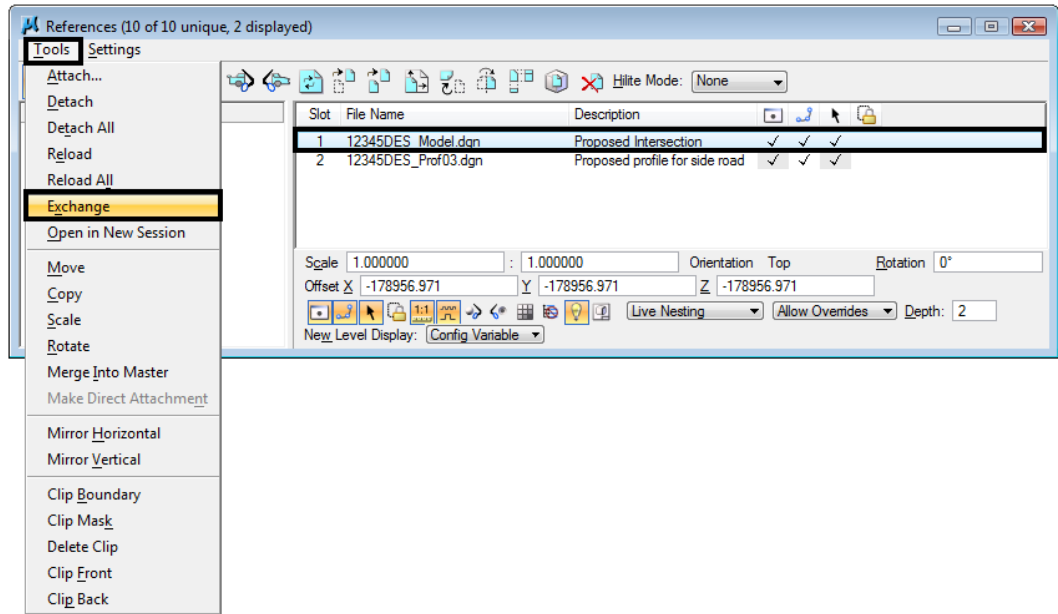


You can't rotate the text because it's in a reference.

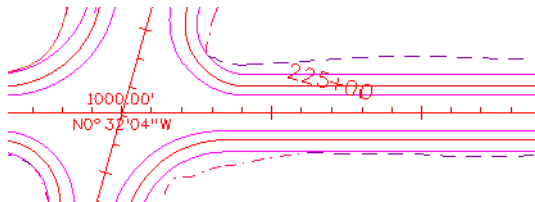
Important! If you're in the Design group and "own" the Design reference, you can "exchange" to that reference to make modifications. Otherwise, contact Design.

- Select **File > Save Settings**.

- On the **References** dialog, select the Design reference and then select **Tools > Exchange**.



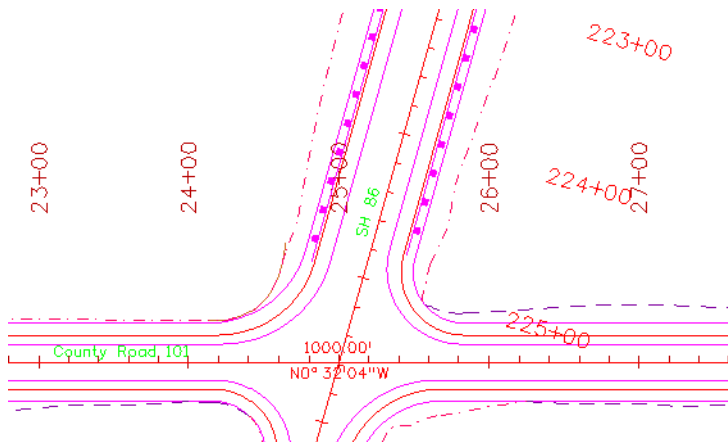
- Select the **Rotate** command, **<D>** on the bearing text and then **<D>** to accept.



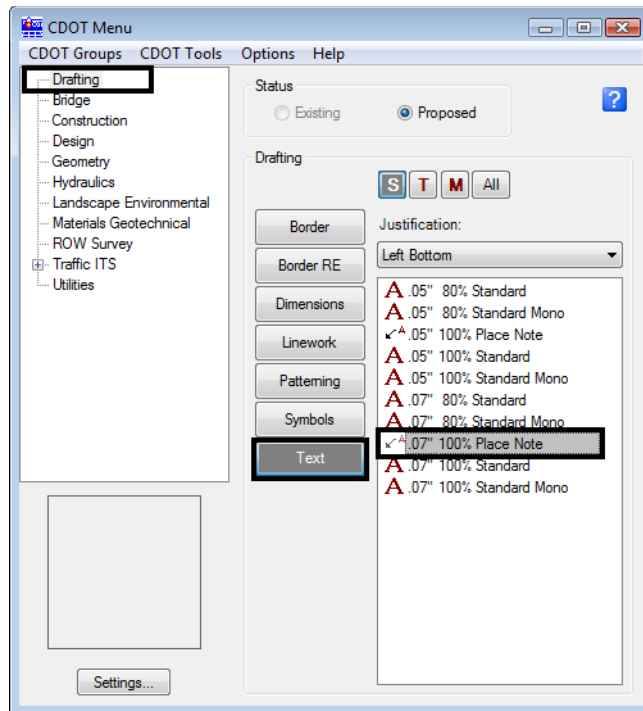
- Select the **File** pull-down menu and open the sheet file from the list of last open files.

Lab 20.3 - Place Notes

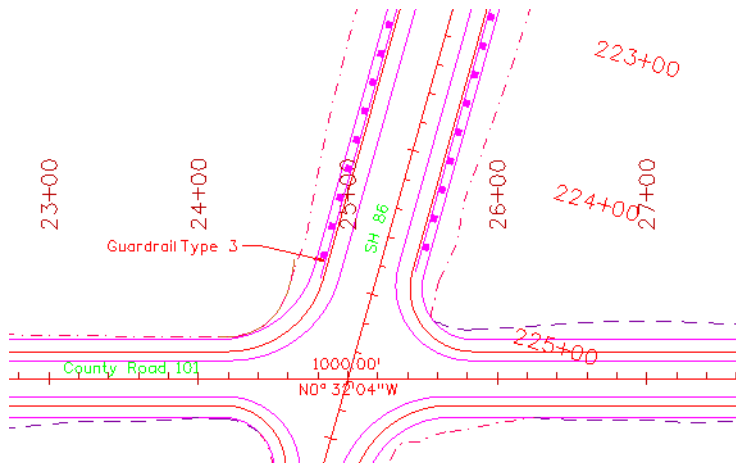
- Window in above the intersection to view the guardrail as shown.



- On the **CDOT Menu Explorer**, select **Drafting > Text** and select the **.07" 100% Place Note** item.



- Click inside the **Word Processor** box and key in **Guardrail Type 3**.
- <D> on the guardrail as shown to define the start point of the note (note terminator).
- Drag the cursor to the location shown and <D> to place the note leader.



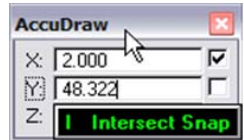
- IMPORTANT:** With your cursor on the **LEFT SIDE** of the leader line, <R> to place the text.

Note: If your cursor is on the right side of the leader when you reset, your note will be placed on the right side.

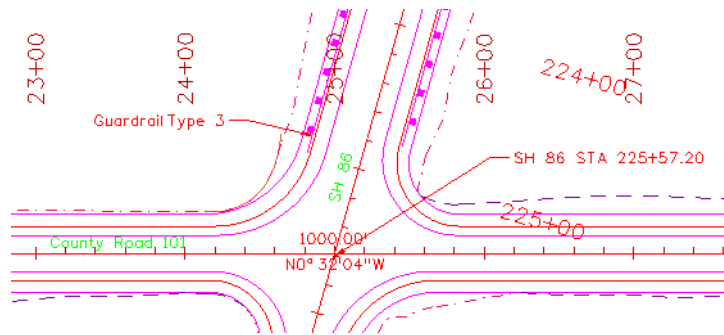
- With the **Place Note** command still active, click in the **Word Processor** box and key in **SH 86 STA 225+57.20**.

- On the **Snap Mode** toolbar select the **Intersection Snap**.

Note: You can also click in **AccuDraw** and press **I** on the keyboard.



- AccuSnap** to the intersection of the two centerlines as shown for the note terminator.
- Drag your cursor out and **<D>** to place the leader line.



- With our cursor on the **RIGHT** side of the leader, **<R>** to place the note.

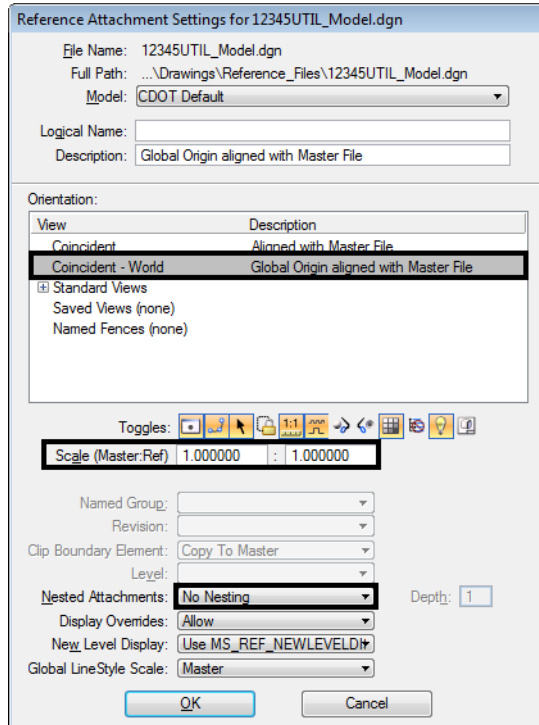
Lab 20.4 - Attach and Annotate Utility Lines

Next, you'll annotate proposed utility lines using the CDOT menu. However, the Utility model was not attached to plan sheet when it was created. Therefore, you must attach the Utility model after-the-fact in order to reference the utility lines for annotation.

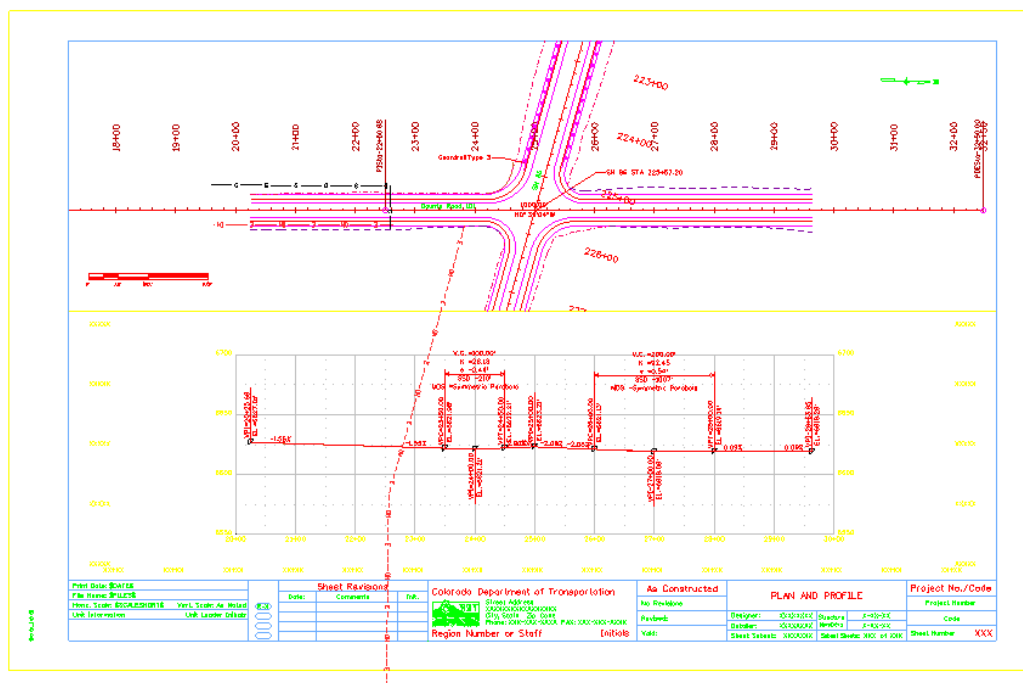
Reference the proposed Utility model

- Fit the view.
- Open the **References** dialog box.

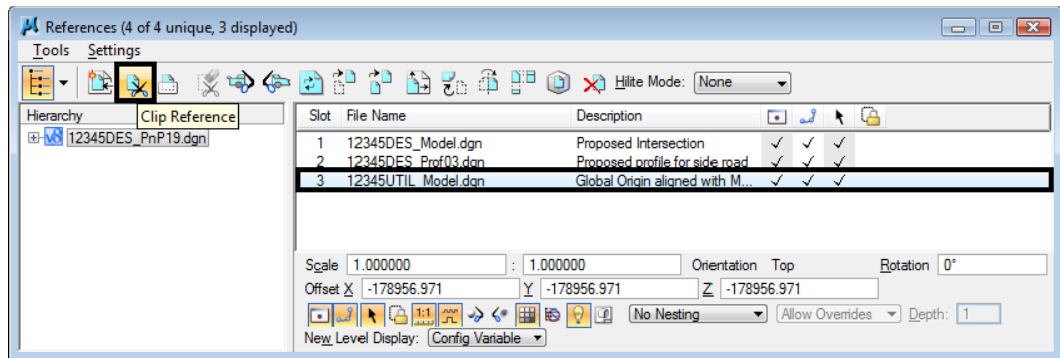
- Attach the **12345UTIL_Model.dgn** file from project's \Utilities\Drawings\Reference_Files folder. Be sure to attach **Coincident-World** at a **1:1** scale with **No Nesting**.



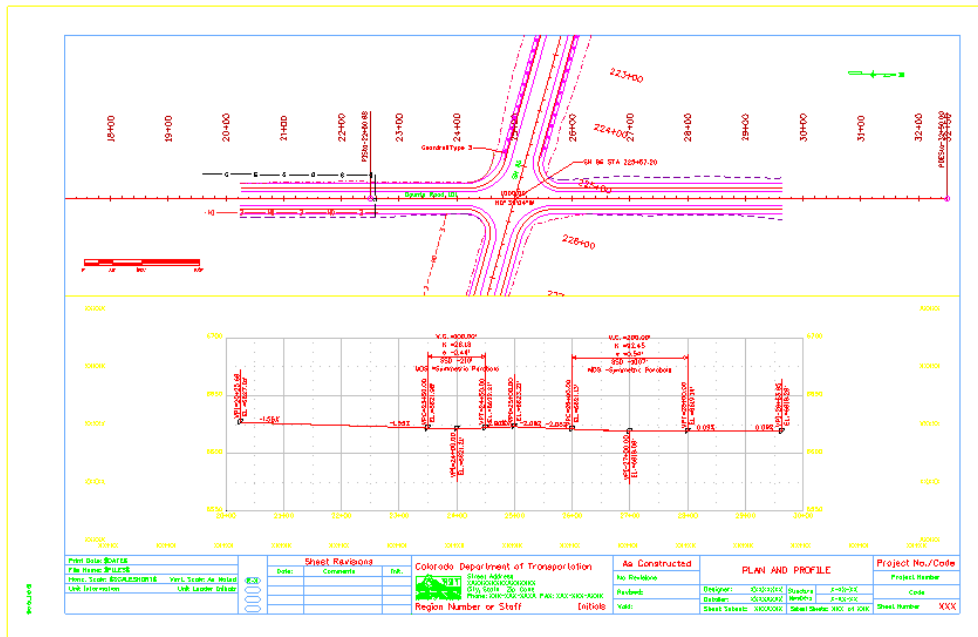
The Utility model is reference, but needs clipping.



- On the **References** toolbar, select the Utility reference and then select **Tools > Clip Boundary**.

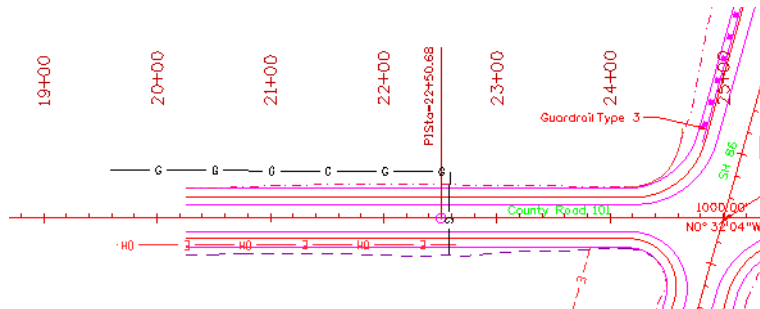


- <D> on the clip boundary block and then <D> to accept.



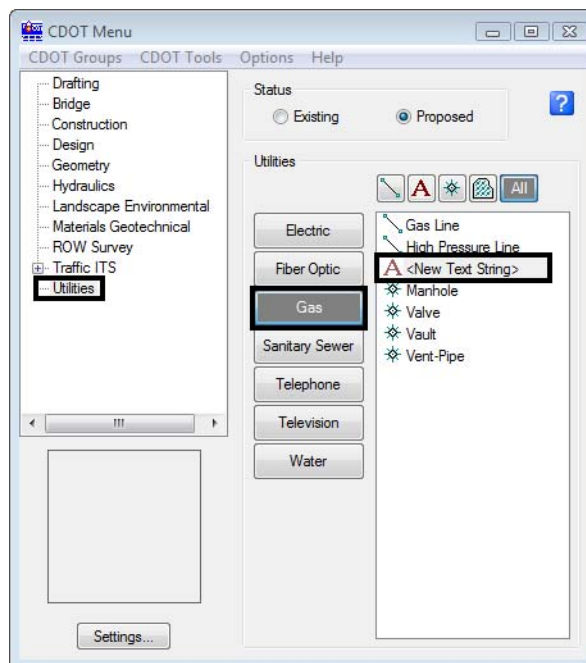
Annotate the gas line

1. Window in on the plan sheet area shown.



2. From the **CDOT Menu** Explorer, select **Group Display > Utilities** and set the following options:

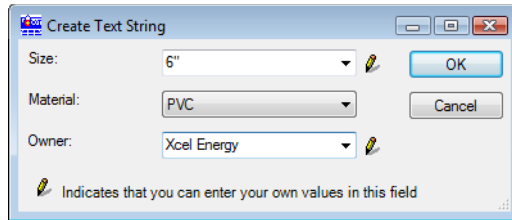
- ◆ Set **Status** to **Proposed**
- ◆ Set the **Category** to **Gas**
- ◆ Set **Filters** to **All** (or Text)
- ◆ Select the item **<New Text String>**



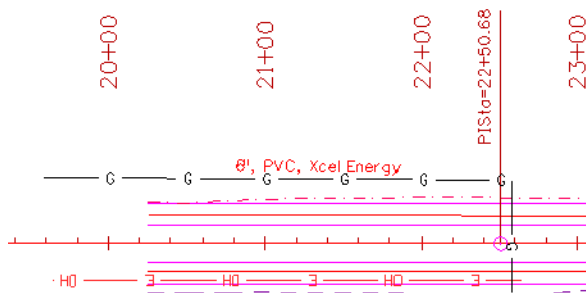
3. In the **Create Text String** dialog box set the following from the drop down options:

- ◆ Set **Size** to **6"**
- ◆ Set **Material** to **PVC**

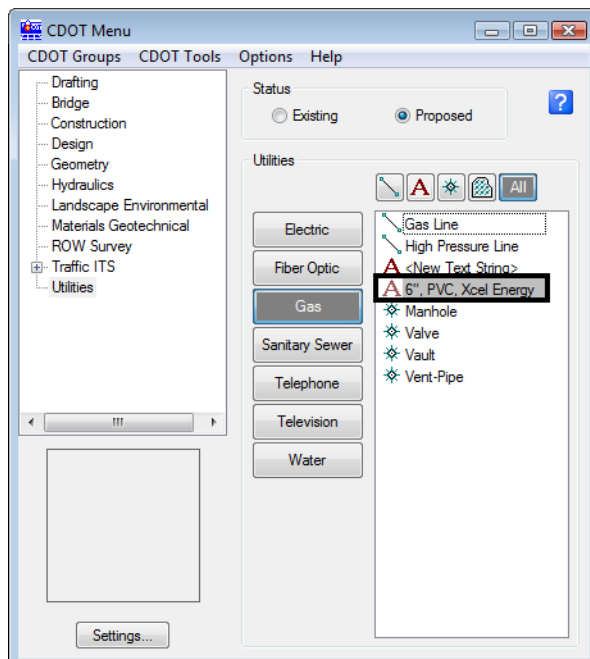
- ◆ For Owner, key in **Xcel Energy**



4. Select **OK**.
5. When prompted to **Identify Element**, <D> on the proposed gas line.
6. <D> above the line to accept the text placement.



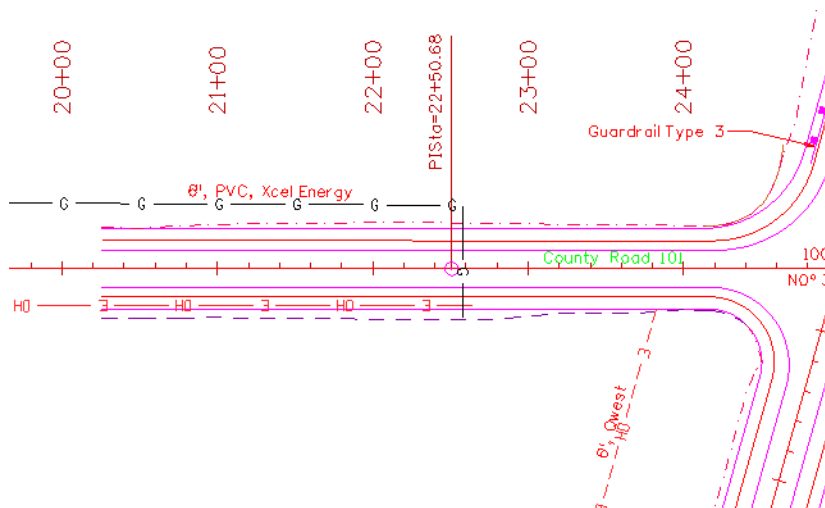
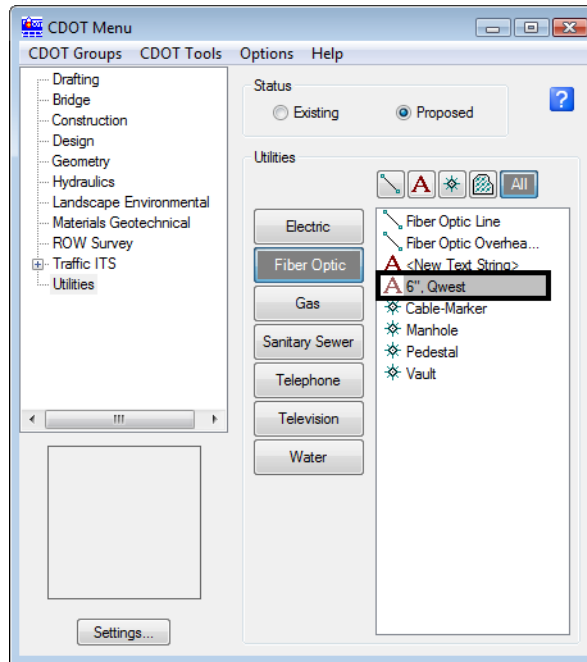
Note: Your custom text 6”, PVC, Xcel Energy is saved as an item in the Gas category for placement again.



You can right-click on a custom text string and either edit or delete it.

Annotate the fiber optic line

1. Create a custom text string (6", Qwest) for the fiber optic line and annotate as shown.



Note: Be sure to <D> near the bottom of the line to fit the annotation.

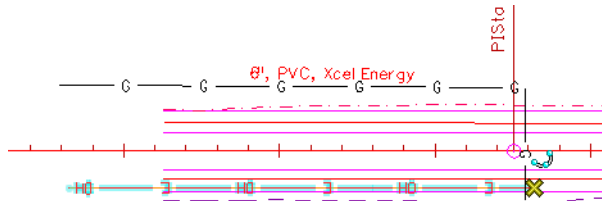
Lab 20.5 - Measure Graphics

Since you referenced your plan view graphics at a 1:1 scale, they are the actual size in the sheet file. Therefore, you can measure plan graphics in the sheet file and get the same results as measuring in the model file. Make sure that Locate is turned on for the reference before using the measuring tools on reference graphics.

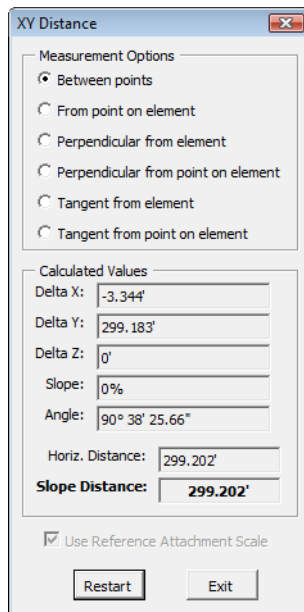
Measure Distance

Between points

1. Measure the OH Electrical Line with the CDOT custom add-on tool.
 - ◆ From the **CDOT Menu** select **CDOT Tools > Measure XY Distance**
 - ◆ In the **XY Distance** Dialog box, set **Measurement Option** to **Between points**
 - ◆ **AccuSnap** on the *two* endpoints of the proposed Overhead electrical line as shown (snap to tie-in at power pole symbols – see arrows below)



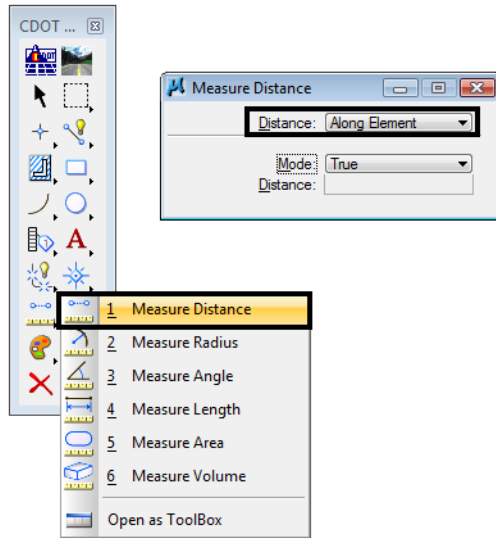
- ◆ <R> when done
- ◆ Your results should match the dialog box



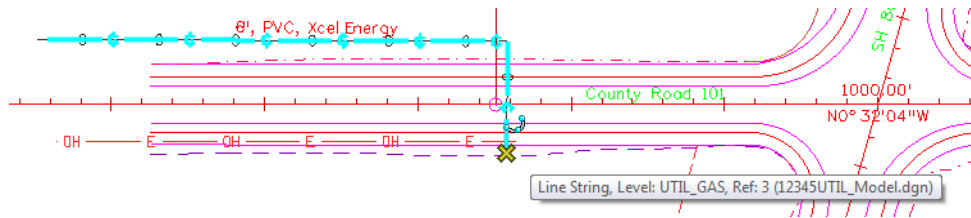
Along element

1. Measure the Gas Line with standard MicroStation tools.

- ◆ Select the **Measure Distance** command from the **Measure** toolbar.



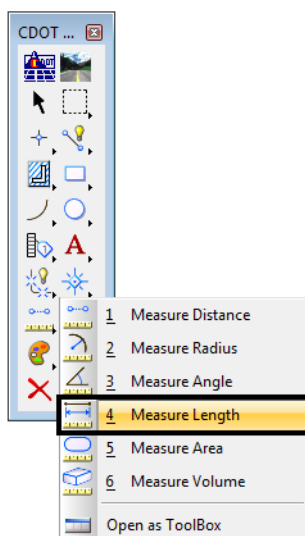
- ◆ Set the **Method** to **Along Element**
- ◆ **AccuSnap** on the **start** and **end** points of proposed 6” gas line as shown (see arrows).



- ◆ Record your results: _____ ft.

Note: Individual results will vary based on how the line was originally drawn.

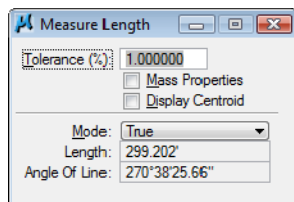
2. Select the **Measure Length** command.



- ◆ <D> on the gas line.
- ◆ Record your results: _____ ft.

Your results should be the same as in step 2. With this command, you only have to select the element with a data point to get its entire length.

3. Use **Measure Length** to measure the length of the OH Electrical line.



Your results should be the same as step 1 where you measure with the CDOT custom **XY Distance** tool.

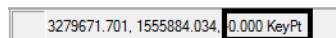
Note: When measuring a straight line with this method, you also get the angle of the line.

Measure perpendicular

1. In the **Design Model** reference, turn **Off** the level **DRAFT_LC-Center_WT-3**.

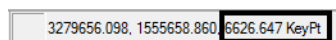
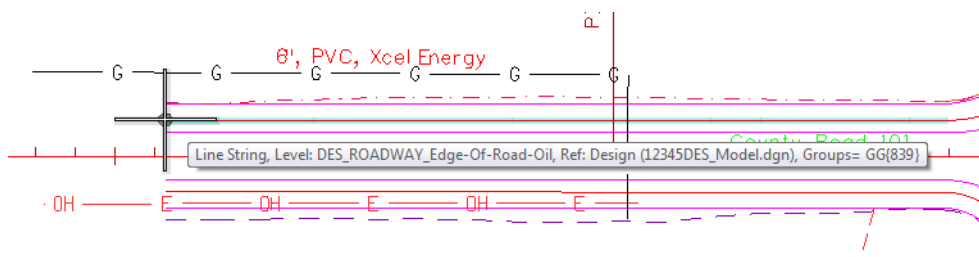
This element (a blue dashed line) is a coincident to the alignment centerline. Since you will only be working with the alignment, turn this level off and leave the **ALG_PROPOSED_Hor-Alignment** turned on.

2. Turn **Depth** lock **Off**.
3. <T> on the side road horizontal alignment and note the Z value.



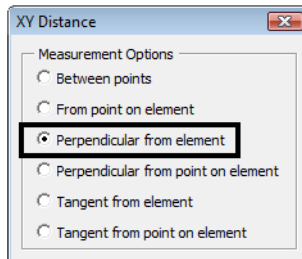
Horizontal Alignments, like this one, are typically placed at elevation 0.

4. <T> on the red upper edge of oil line at the beginning of the alignment and note the Z value.



The edge of oil line is placed at the correct elevation.

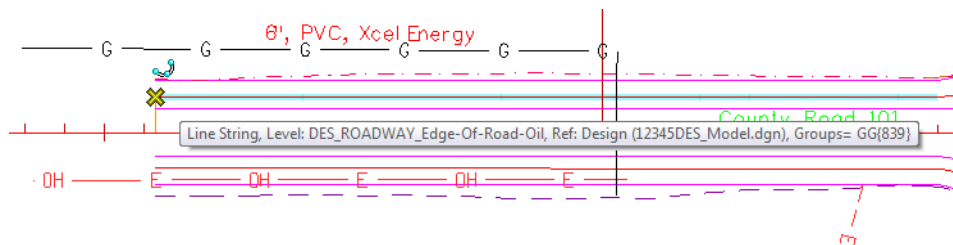
5. In the **XY Distance** dialog box, set the **Option** to **Perpendicular from element**.



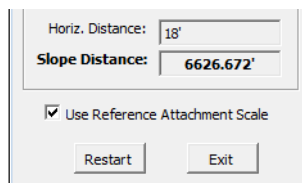
6. <D> on the side road horizontal alignment.

MicroStation displays a horizontal tracking line.

7. **AccuSnap** on the end of the upper edge of oil line.



8. Review your results:



Note that even though the two elements are at different elevations, the CDOT custom **XY Distance** tool provides both the **Horizontal Distance** of 18 feet along with the true 3D slope measurement (or **Total Distance**) of 6626.672 feet.

